THE

SOUTHERN AGRICULTURIST.

JULY, 1832.

PART I.

ORIGINAL CORRESPONDENCE.

ART. LVIII.—*Remarks on the Red and the White Clover; by* THOMAS PARKER.

"Rockey Grove, Abbeville District, 28th April, 1832.

Dear Sir,—The following remarks on the cultivation of Red Clover, with some few on White Clover, are not the result of my own experience, for, until the present year, I have never sowed any, under the impression that our sun was too hot and our soil too arid for its successful cultivation; but they are the result of much reading, inquiry and reflection on the subject, and from witnessing three successful experiments made with it in my neighbourhood on a small scale. I investigated the subject in order that I might form an opinion for myself whether or not it could be successfully cultivated in this State; in doing which, I took notes of whatever I thought material, and relying most upon the writings of the Virginia and North-Carolina farmers, as their climate approximated nearer to ours than that of any other considerable growers of that grass whose writings I have met with; and having, upon this investigation, been induced to sow fifteen* acres of it this spring, a portion of them for mowing and the remainder for pasturage, I reduced these notes for my own use into order

* Two of my neighbours have also sowed this spring an equal proportion.

under separate heads for obvious reasons. If you think they will be acceptable to your readers, you are at liberty to publish them, or if you have more interesting matter to give us, unhesitatingly toss them into the fire.

Kind of Soil.

Agriculturists agree that red clover will not succeed on a wet soil; but they differ much as to the soil best adapted to it. Mr. Hugh Rose of St. Thomas' parish, not very far from the sea-board, has cultivated it with success on a stiff tenacious clay; whilst the Editor of the Southern Agriculturist has seen it succeed in high sandy soil, near the sea-board too, if I understand him correctly. Mr. J. E. Calhoun has succeeded well with it in Pendleton district, near the mountains; and with Col. B. H. Saxon, in Abbeville district, it has grown luxuriantly both on a high, loose, brown, loam, or dark mulatto soil, and also in a firm, deep, dark grey soil, somewhat flat and inclined to be moist, though very far from being wet; both of the above soils having a stiff clay foundation: and in the neighbourhood of Cambridge, I am told, it has succeeded well on the high mulatto soils, which are generally loose and deep, on a stiff clay. A writer in the American Farmer says, "it prefers a 'light sandy or loamy soil, and will with the assistance of 'plaster thrive well upon gravels." In the Domestic Encyclopœdia, it is said to thrive best on a firm heavy soil, whilst in Encyclopœdia Americana, a preference is given to a deep sandy loam, though it will succeed, it is there said in any soil not too moist. From all the information I have collected on this point, I think a soil with a stiff clay below is probably best adapted to it. In the upper country of South-Carolina, I would prefer a loose mulatto soil, when the clover is sown in the spring, and a firm heavy one if sown in the fall, for reasons hereafter given; but I believe it will succeed in any but a wet soil.

Preparation of the Land.

Clover being a small and light seed should be sown on land well pulverized by the culture of some previous fallow crop; or the land should be well ploughed, cross ploughed and harrowed so as effectually to loosen and pulverize the soil, break the clods and destroy the native grass. If it is intended to sow it with small grain, the land should be har-

rowed or brushed with a heavy brush after the small grain has been ploughed in before sowing the clover seed.

Choice of Seed.

Clover seed is too often heated in the saving, which destroys its vegetating powers; the good or bad quality of the seed may be discovered by filling a glass tumbler half full of water and dropping a few seeds in: those that sink are good, those that swim are generally deprived of their vegetating powers. If the seed is plump and of a deep purple, or a bright yellow with a good quantity of purple and brown mixed with, it has arrived to maturity; but if of a faint colour, it has been gathered when unripe. Clover seed when properly gathered and perfectly ripe will continue to vegetate for four or five years.

Time of Sowing.

Clover may be sown in the fall or in the spring. If sown in the fall, October is to be preferred in this State, and the earlier in it the better, that the young clover may acquire strength to resist the winter frosts; it may, however, be sown from the latter end of September to the middle of November. If sown in the spring, it had best be done the latter end of February or early in March, that it may attain a sufficient growth to stand the warm weather; but it may be sown from the middle of February to the middle of April. *Some* of the Maryland and Virginia farmers sow it in the fall; but *most* of them sow in the spring. So little clover has been cultivated in this State, that it is difficult to decide whether the fall or spring is the preferable time; but a sufficient number of successful experiments have been made, to prove that either time will answer, unless the season is indeed a very unfavourable one. If clover is sown in the fall in the upper country, I would prefer sowing it on a firm, heavy soil; or if sown on a light one, I would sow it on wheat in preference to oats. The winters are often sufficiently severe to destroy fall sown oats entirely on light soils or mulatto land, (which last the frost takes a greater effect upon than any other soil, so much so as to spew the land up as it is termed) and when the oats are destroyed, I fear the clover would be also, either by the cold or from want of a protecting crop in the spring and summer; whilst oats sown upon a stiff, firm soil have borne without injury the severest winters. So, also, a field with a southern aspect should be

preferred for fall sowing. I am led to this opinion from the following fact. In October, 1827 or '28, I sowed oats in a field which sloped from the north and the south sides downwards to the centre. There were severe frosts that winter. The oats on the southern part of the field, which sloped downwards towards the north, were killed to a plant; whilst the oats, on the northern part of the field, with a southern aspect, were uninjured; the soil and all other circumstances precisely the same.

Quantity of Seed to the Acre.

There is a great diversity of opinion on this subject. Some sow only four quarts and others as high as ten quarts to the acre, when intended for hay or seed, but less when for pasturage. In Loudoun County, Virginia, the usual quantity is four quarts per acre when intended for hay or seed, and two quarts when for pasturage. In Maryland six quarts in the first case and four in the second. In Pennsylvania four quarts. A writer in the American Farmer says, "from six to ten quarts may be sown to the acre; 'there is little danger of its being too thick. Soils require 'more or less seed in proportion to their richness, poor 'soils requiring the least." "More seed is required for 'spring than for fall sowing." Mr. Hugh Rose says four quarts of seed are sufficient. If a farmer has plenty of seed I cannot conceive of any good reason why as much seed should not be sown for pasturage as for hay or seed. In all these cases, seed which has been well cleaned from the chaff is meant; for where seed is sown with the chaff, the usual quantity is a bushel to the acre.

Manner of Sowing.

Clover being a very tender grass when young is liable to be destroyed by severe frosts in winter if sown in the fall; and by warm, dry weather when sown in the spring; on which account it is generally sown with or on small grain, which protects it in its young and tender state against the frosts and the sun. Clover will succeed well in South-Carolina without any protecting crop if favoured by a mild winter, or a cool dripping spring, as proved, on a small scale, by Mr. Hugh Rose, in the lower country, and Col. Saxon in the upper; but the agriculturist should calculate on having the usual seasons. From the frequent severe winters in the upper country it would probably fail nearly

as often as it would succeed if sown without a protecting crop; and I have witnessed a sufficient number of warm, dry springs to make me hesitate about speculating on a cool dripping one: and even if such a spring should occur, it must be sown in drills and worked well, or our native grasses and weeds will destroy it; to do which would consume time, not to be spared at that season of the year where cotton is cultivated as a market crop. Besides sow it as you will, you will receive no crop from it the first year, as far as I can discover; whilst if sown with, or on small grain, you will get a crop of *that* without any additional trouble. For these reasons I think it would be prudent to pursue the usual course and sow it with small grain until more experience on the subject shows the other to be the preferable one. Mr. Hugh Rose, however, is of a different opinion; but as this opinion seems founded on a single experiment, its correctness may be doubted without any disrespect to that gentleman's opinion; and, besides Mr. Rose, I have met with no writer who recommends sowing clover without a protecting crop of small grain or some hardy grass, such as orchard grass, rye grass, or blue grass, &c. The question, however, is not merely whether to insure success with red clover in this State, it should be sown with a protecting crop or without it; but also whether the success without it is so much greater as to compensate for the loss of the crop of small grain which in the upper country is an important consideration, as wheat is there cultivated with success as well as other small grain. In two out of three experiments made with red clover in this neighbourhood by Col. Saxon, he sowed his clover with his oats in the spring; he obtained a full crop of oats and the clover succeeded perfectly. Fall sowing, without a protecting crop, would succeed better in the lower than in the upper country, for there the winters are considerably milder. In Europe, and throughout the United States, even as far South as Virginia, clover is usually, perhaps, I might say invariably sown with a protecting crop of some kind. In sowing clover the field should be laid off in lands not more than eight feet wide on account of the lightness of the seed, and if it is intended to sow clover in the spring of the year on small grain sown the previous fall, the small grain should be ploughed in with a shovel or mould-board plough, as *they* leave water furrows, which from their width and depth

will be sufficiently plainly seen in the spring of the year to save the trouble of staking off the field at that season for sowing the clover. The field should then be levelled either with a harrow or heavy brush. Clover being a very light seed, can be sown regularly only in calm weather. Where it is extensively cultivated, it is generally sown in the chaff broadcast; but if the seed has been freed from the chaff, &c. there are four ways of sowing it.

1st. Mix the seed with sand, ashes, &c. and sow it as turnip seed or any other small seed is sown, broadcast; or

2d. Take as much of the clean seed as can be held between the thumb and two fore-fingers for every two casts or steps, and let the casts not exceed the width of the lands; or,

3d. Sow it with one of Bennet's drills, made for that purpose; or,

4th. A box may be used, made as follows, viz: seven feet long, five inches deep and five inches wide, of light half inch plank. The box should be divided into seven parts, each division having two holes bored through the bottom half an inch in diameter and placed diagonally. Square pieces of stout paper are to be pasted over the holes on the inside of the box, and a hole must be burnt with a coarse knitting needle through each paper. At about one-third of the distance from each end of the box should be fastened strong leather straps by which the box is held (or rather which passing over the shoulders of the sower supports or hangs the box) and a little agitated in carrying before the sower, in a direction crossing the lands while he walks along the lands.* If this mode of sowing is adopted, the lands should be laid off not quite as wide as the box is long. The seed can be sown broadcast with greater regularity with this box than in any other manner. If clover is sown in the spring on small grain which was sown in the fall, it is recommended to harrow in the seed with a light harrow or much will be lost; which operation, it is said, will benefit and not injnre the small grain. (This appears to me to be a harsh operation, neverthelsss, I will try it on a small part of the wheat.) Clover is often mixed and sown with other grass seed, such as Timothy, Orchard, Rye, Blue grass, &c. in the proportion of two of clover to one

* For cut, see 2d vol. American Farmer, p. 60.

of the other. It is said that none of these foreign grasses succeed well in our State, but the same thing has heretofore been said of clover. Dr. Frost saw in Abbeville district a patch of blue grass growing so luxuriantly as to induce him to urge me to try it; and at Dr. Reid's, in my neighbourhood, is a patch of the same grass, which has succeeded well. Blue grass is said to be an antidote to the effects which the second crop of clover has upon stock, and to be a beneficial grass to the grazier, but a pest to the farmer if injudiciously managed. Clover is sown indiscriminately on wheat, rye, and oats, but is most generally sown on wheat. I would prefer sowing it with or on the latter as it bears the winter better than oats and is cut before either of the others, and the sooner the protecting crop is cut after the clover has attained strength enough to withstand the sun and compete with the native grasses and weeds, of course the better. Clover seed should be covered very lightly, if covered at all; but from the experiment I made this spring, I think it ought to be covered, but as lightly as possible. At the North it is frequently sown whilst snow is on the ground; in Kentucky, I am told the practice of some is to brush it in lightly, when it has not been sown on the snow.

Mowing.

Clover yields not less than two crops each year. The first stands unrivalled for hay; from the second, seed only is, generally saved, as the hay from this crop is said to salivate horses, though it will answer for other kind of stock. Mr. Hugh Rose, however, in the lower part of this State, cuts his clover twice, viz: early in May and late in July and then permits it to go to seed; but as the clover patches, I have seen growing in Abbeville district, were not fit to cut for hay until some time in June, but one cutting for hay can be calculated on there. It should be mowed after it is in blossom and "before the seed is formed. After being cut, the clover should remain in the 'swarth until it is dried about two-thirds its thickness; it is 'then not strewed but turned over; the hay should be as 'little shaken or scattered about as possible." Another writer in the American Farmer, directs it to remain in swarth from a day and a half to two days, then rake it into winrow and cock it; it being a very erroneous practice to

spread it in the sun and turn it. In 2d. vol. same work, p. 60, it is said, "when the half or more of the clover heads 'are turned from red to brown, and on the decay, it is the 'right time to mow it. Some make clover hay, by following the mowers, and spreading the swarths as soon as the 'dew is off, and making it up into cocks before night; 'some make it into cocks immediately after the mowers. It 'is a hay that requires great attention in curing, as the heads 'and leaves will bear little stirring without crumbling; it is, 'therefore, best to rake it after the due falls in the evening. 'The hay is put into the stack or barn the day after it is 'mown, and to secure it from becoming over heated or 'mildewed, some sprinkle salt alternately between each 'layer of hay, which assimulating with the juices of the 'hay, prevents too great a fermentation; some put a layer 'of straw between load and load of it; the straw contracts 'so much of its moisture, that the cattle eat it free. Where 'straw or salt are not used, it is usual to make a funnel in 'the centre of the stack to admit the air. This may be simply done, by placing or leaving five or six rails against a 'centre pole to stack the hay around." When salt is used in saving clover-hay, the quantity used is from half a bushel to a bushel per ton.

Saving Seed.

Some farmers, when the clover is sufficiently ripe, mow it—rake it into winrows as fast as cut—stack it as soon as convenient under cover or before rain if possible—and when wanted spread it on the treading floor and tread it out with horses—separate the straw from the chaff and seed, and clean the seed from the chaff, or not, as they prefer. Seed sown in the chaff is said to vegetate quicker than the clean seed, the covering of the seed retaining moisture. Cattle will eat the straw when saved in this way. Some rake the clover into small heaps as soon as mown and expose it in the field for several weeks to promote the decay of the husks and turn the heaps in wet weather. When the husks are sufficiently rotten which may be ascertained by rubbing the heads between the hands, these heaps are removed early in the morning or in damp weather, to prevent too great a loss of seed and housed; but by this method the hay is lost as food for cattle, though it answers well for littering the stable with and makes strong manures. But

by both of these methods the seed is more or less liable to be heated in the saving, unless judiciously and carefully done. One of the above methods is the course pursued by the majority of farmers. Some farmers use a machine for gathering the seed, very simple in its construction, drawn by one horse and guided by a man or boy. "It consists 'of an open box, about four feet square at the bottom, and 'about three in height on the two sides and back-part, the 'fore-part is open, and has fingers fixed to it either of hick-'ory or steel, like a comb, about thirteen inches long, and 'so near as to break off the heads from the clover stalks 'between them, which are thrown back into the box as the 'horse advances. The box is fixed on an axle-tree, sup-'ported by two small wheels, about (sixteen inches or) two 'feet in diameter; two handles are fixed to the hinder part, 'by means of which the driver, while he manages the horse, 'raises or lowers the machine so as to take off all the heads 'of the clover."* Hand rakes or cradles are also used for this purpose, which suit small farmers still better, and which are made of different sizes, in proportion for men, women and children. This instrument is made of a thin board eighteen inches long and ten broad. The fore-part of it to the length of nine inches is sawed into fingers; a handle is inserted behind, inclining towards them, and a cloth put round the back part of the board, which is cut somewhat circular, and raised on the handle; this collects the heads or tops of the grass, and prevents them from scattering as they are struck off by the cradle.† These hand machines may be dragged over the cleanest parts of the clover so as to avoid the seeds of weeds, which the horse-rake collects indiscriminately. A well grown boy or girl will, it is said, collect, with one of these hand-rakes or cradles four flour barrels full, well packed, in the space of six or seven hours, equal to a bushel of seed. The seed collected either by the horse or hand-rake, is not liable to be heated as when saved by mowing the clover, but the second crop of hay is lost unless it is mowed immediately after saving the seed.

* See 1st vol. American Farmer, No. 32, p. 252, for Cut; also, see Cut in 2d vol Domestic Encyclopœdia, p. 149.

† For Cut, see Domestic Encyclopœdia, 2d vol. p. 149; and American Farmer, 1st vol. No. 35, p. 279, for Cuts of a very similar instrument.

The trouble of saving the hay and the seed by mowing it, being the least, is the manner usually pursued, but that by the horse or hand-rake will more certainly provide good seed.

Produce per Acre.

Mr. J. E. Calhoun from a little less than an acre in Pendleton district, hauled off "four large wagon loads of hay, as much piled on, as four large mules could draw." Col. B. H. Saxon, from one-fifth of an acre in Abbeville district, got near one ton of hay. This clover patch of Col. Saxon's was, it is true, very highly manured. Besides this hay, seed can be collected worth from $4 to $8 per bushel, and a great deal of inferior hay for cattle or for making manure with. A farmer of Culpepper County, Virginia, writes that from an acre lot of clover and orchard grass mixed, eight or ten head of cattle or horses, may be furnished with green food, from April until frost, and the cutting of it may commence when the clover is from twelve to eighteen inches high. An acre of clover, it would appear, may be safely estimated to yield as much hay as ten or fifteen acres of corn will yield of fodder; and the saving of labour will be very great in favour of the clover. It is true, however, that the clover must be cut and saved at the very moment when in the working of the cotton crop, time is very precious; whereas corn-fodder is not ready for gathering until some time after the cotton crop is laid by.

Its use as Pasturage.

Red clover is said by some farmers to be preferable to any other kind of grass as pasturage; but Col. Taylor of Virginia, prefers the white, the treading of the ground seeming necessary, he says, for the existence of white clover, whereas red clover if severely grazed on stiff land, will be eaten out by white. Clover, red or white, forms an excellent pasture for all kinds of stock, but for hogs, red clover is particularly valuable. They should be turned in as soon as it is in blossom, (but not before,) and will thrive on it exceedingly, and if well salted will continue to do so as long as the clover lasts. They graze on it without attempting to root, and will not require to be fed with corn. Some writers, however, say, that it is best to turn all stock off after July, as the second crop is injurious to them all, especially to horses, and it makes the best seed. The second

crop is said to act as a diuratic on animals that chew the cud, and to salivate horses and hogs. Distillers in Loudon County, Virginia, who attend to the raising of hogs, cultivate red clover as the principal support of their large stocks in the warm weather, when from necessity their stills are idle. Blue grass is an antidote to the effects of clover, is a fattening and beneficial grass to the grazier, but is a pest if injudiciously managed to the farmer. In the Domestic Encyclopœdia, "hogs, (are said) to thrive exceedingly 'upon clover; and when *soiled* no food is more economical;" but in the Encyclopœdia Americana, it is said, that the late Judge Peters of Pennsylvania, observed, "that swine feeding on clover in the fields, will thrive wonderfully; when 'those, confined or not, fed on cut clover will fall away." "Red clover should never be touched by the tooth or hoof 'until it blooms."

WHITE clover is a natural grass of the United States. When sown by itself it does not grow tall enough to be cut with a scythe; but when mixed with Timothy or other grass makes excellent hay. It is, however, chiefly used as pasturage. Col. Saxon, in my immediate neighbourhood, has for many years had a large pasture of it. He told me in a conversation I had with him on the subject that "white clover makes an excellent spring pasture 'and prefers a moist soil; it comes in very early, long 'before the common grasses of our country, but dis-'appears about the middle of July or early in August. 'Stock of all kinds are fond of it, but it salivates horses 'from the time the seeds begin to ripen. It prefers a close 'moist soil, and after it has once taken possession of land, 'it may be continued for many years by occasionally stirring 'the land with a plough without sowing any more seed." I have now lived nine years in his neighbourhood; I found this pasture there when I came, and it is still as good as ever; and my own observations on it, satisfy me that the above statement is correct, notwithstanding that Mr. Elliott, in his Botany of South-Carolina and Georgia, says, it is eaten sparingly and reluctantly by stock of any description. "Sheep, (says Mr. Thomas Saxon) should not be 'kept continually on it, but should be occasionally turned 'off for a few days, or they will decline." Swine thrive well on white clover, but care should be taken to ring them before turned into pasture or they will root: a precaution

which is not necessary with red clover if they are not turned on too soon and taken off in proper time.

Duration.

In the 2d vol. of Elliott's Botany, is said to be a perennial plant: about the year 1817, Mr. Hugh Rose sowed a patch which lasted five years.* A writer in the American Farmer says, "after frequent repetitions clover fails; on a 'dry soil it will last three years; from the first crop there is 'no seed worth gathering; the second crop grows more 'even and comes sooner to maturity; the successive crops 'deteriorate every year, until choaked with weeds or grass." In 1829, Col. Saxon sowed a patch in this district, and in 1832, it is still growing luxuriantly, though not so much so as the last year, and the weeds appear to be increasing in it. Where clover is cultivated extensively, it is not customary to allow it to occupy the field longer than three years including the year it was sowed, and more often only two years. Whether this course is pursued because the successive crop deteriorate, or because it runs out, or to get the advantage of a clover lay as manure, or from pursuing with regularity a rotation of crops, I have been unable satisfactorily to ascertain; probably all or several of these reasons may influence the course pursued. In the 2d vol. American Farmer, p. 15, it is said to be generally necessary to sow clover every time after the land is cultivated; but neither Mr. J. E. Calhoun or Col. Saxon found it to be so from their experiments. These two experiments may however form exceptions to the above rule, which though laid down as a general one is still so expressed as to show that there are known exceptions to it. When land becomes clover sick, as it is called, from having been cultivated many years in clover, the clover must be discontinued for three or four years, and some other crop substituted. From half a bushel to one bushel of plaister of Paris to the acre, sowed in the spring on clover, is said to produce an astonishing improvement in it.

Yours, respectfully,

THOMAS PARKER.

* See Southern Agriculturist, 1st vol. p. 250, also the editorial note.

ART. LIX.—*Observations on Indigo, Poppy, Grass, and Buckwheat; by* Dr. CHARLES W. CAPERS.

"St. Helena, March 28, 1832.

Dear Sir,—I received your letter addressed to me on the subject of Bengal indigo seed, &c. It was not to me, however, but to Mr. Charles Gabriel Capers, to whom they were given; and I am requested by him to inform you, that he had not seed sufficient to do any thing more than to plant for the purpose of procuring seed for another year. His own impression is, that it is of a quality far superior to that which was grown in this State formerly; and thinks at the present depressed state of the cotton market, that it might be cultivated to advantage.

On this subject I am not at all prepared to offer any remarks, excepting that I should feel reluctant to see our planters compelled to leave the beautiful culture of cotton for that of indigo, which is know to be unhealthy as well as one which is disgusting.

With regard to the poppy seeds sent to you, they are of a large, and as far as I can judge, an excellent kind. No attempt, however, with us has as yet been made to manufacture opium; but when we know that the opium made in England is far superior to the Turkey opium, being freer from impurities, I do not see why we cannot do likewise, particularly as it stands the cold remarkably well, and will thrive in the poorest ground; and the manufacture of opium is so simple that we have not attended to it because heretofore we have had other things to turn our attention to, and with the culture of which we were better acquainted.

The box of wild oat seed left with you, and which you have called, I think erroneously, the Elymus Virginicus, is a native of our Hunting Islands. Is an excellent winter grass, and has been cultivated to some extent with us. It is easy of culture, and in the spring of the year may be separated and transplanted the same as Guinea grass. At a proper time of the year, I will pay more attention to its botanical character, but I have always myself considered it the Uniola spicata of Mr. Elliott.*

* As far as we can judge from the seed alone, we still think it is the Elymus Virginicus. Dr. Capers will soon be able to ascertain, and will, we hope, inform us of its true name.—*Ed. So Agr.*

A winter grass in our climate would be a great desideratum, and I do not think there has been proper attention paid to the subject. We have, I am confident, many grasses with us whose qualities, if known, would entitle them to more general attention; nay, even our summer grasses for the making of hay, have been in a great measure neglected, and we have allowed ourselves to depend upon the Northern States *for an article which we have far superior among ourselves.* This answered very well in former times when we could afford to pay for it, and considered our grass as an evil, but the time is now coming when we will be compelled to look at home. I would particularly request of you to call the attention of your correspondents to this subject. I have myself turned mine to it for many years past and am ready and willing to contribute my mite in the way of information, but it should be done in different parts of the State as what may answer very well in one, will not in another, and I mention this more especially as I observe in your useful work many pieces, the advantages to be derived from which are in a great measure lost to us, in consequence of not knowing from what quarter they emanate, not having a "local habitation and a name," at least one, by which we can distinguish them. In a publication of this kind it is of course optional with the writer of any article whether he will attach his name to it or not; but I presume that every contributor will see at once the necessity, that the places where experiments have been tried should be made known, and I may add, that in most instances, the names of the authors themselves would go far in adding to the value of the communication.

When, therefore, I select one piece from among many to illustrate this point, I presume the writer will appreciate my motives, and consider this not as offering a critique upon his article—"On the culture of buckwheat in the Southern States, with directions for preparing it for the table, by *An Exotic.*"

Like ancient Gaul we are divided, in an agricultural point of view, into three parts. The sea-board, the middle, and the back country. So far from this operating against us, it explains why we in so small a space can be useful to each other. It is unnecessary to say any more upon this subject, as I presume the matter is well understood by every intelligent planter.

I was much pleased to find that buckwheat had been so successfully cultivated here. The only planter upon our island who has cultivated it within my knowledge, informs me that he has raised from it three crops in the same year, and that seventy-five days from planting, has had it on his table to eat. I agree with "*An Exotic*," that it has become an article of very common use at our tables, and that it would be desirable that we should grow it among us. He has spoken of it only as an article for the table; but in New-England it is, or was, a few years past extensively cultivated for the purpose of cutting whilst green to make fodder for cattle. In this way they usually raise three crops during the summer. I am confident that we might also make this a profitable pursuit.

The finest crops of buckwheat I ever saw were in Canada, it was about four feet in height when in blossom, whereas with us I never saw it exceed two feet.

With regard to it as an article for the table, I fully agree with your correspondent; also as to his manner of preparing it, and I never heard an objection started to the disparagement of buckwheat cakes but once, and that was by a gentleman who had them at his table very frequently, especially of a Sabbath morning; and he was finally compelled to abandon them on that day at least, in consequence of his becoming sleepy during divine service, which he attributed to the cakes.

The Dutch settlers of New-York, New-Jersey, and Pennsylvania, have, certainly as far as my experience has gone, exceeded all others in our country, in preparing those delicious cakes, and if in following the rules laid down by "*An Exotic*," we can arrive at it, I shall be exceedingly rejoiced at having it in our power to add one more to the many delicacies which our tables afford. But I am fully of opinion with the sage, Mrs. Glass, who, in giving directions how to cook a certain fish, begins by saying, "first catch it," so I think that the first thing we should pursue if we wish good buckwheat cakes from meal of our own production, is, that we should go to work and learn how to produce it.

I have lately received from the South of France, (a climate which resembles our own in many particulars,) a number of seeds for the purpose of planting, and ascertaining

whether they will answer with us. The result of which if agreeable to you, shall in due time be made known.

Your obedient servant,

CHARLES W. CAPERS.

It is certainly high time that our planters should turn their attention to our native grasses. By a proper selection, we may have an abundance of green food during the whole year, and our crab and crow-foot grasses, will, with very little care, furnish a supply of the finest hay, fully equal if not superior to any imported from the North. As Dr. Capers has turned his attention to this subject for many years past, we hope he will give us all the information he is in possession of on the subject. The Southern States being no longer in the prosperous condition they once were, it behoves them to expend as little of their income as possible for articles which can be raised within their limits, and every planter can raise not only enough for his own use, but some to spare. We shall be happy to learn the result of Dr. Capers' experiments with the seeds received from France.—*Ed. So. Agr.*

ART. LX.—*Extract from a Report, read before the St. Andrew's Agricultural and Police Society, April 3d, 1832, and communicated by the Society.*

"It becomes our duty to report before this meeting on the following query, viz:

'Whether more profit might not be realized by planting corn than cotton, estimating the average profit for any given number of years.'

In entering into an impartial examination of the relative value of these two crops, we concluded it would be necessary to be governed by facts, and have therefore, as far as practicable, based our report upon what has been realized from those crops on an average of five years, immediately succeeding that of 1825, by members of our Society. In prosecuting this determination, we have applied to planters and factors for information upon the subject, by several of the latter we have been promptly and politely answered;

but we are sorry to say that we have been disappointed in our expectations from the former, their answers having been (with a few exceptions) furnished only from memory, which destroys much of that validity which was so desirable. We must, however, do the gentlemen to whom we applied, the justice of saying we believe they gave such answers as they had it in their power to make, and that there was evinced no disinclination to communicate with us, but the reverse, and for which we take this opportunity to return our thanks. And here, if permitted to digress, we would ask, would it not be advantageous to the planter individually, as well as to our society, for members to enter regularly in a book all the transactions of the plantation; from which extracts might at any time be readily made, and which would furnish *certain* information, as to what had been experienced in years past.

The usual practice among us is, to cultivate three acres of cotton per hand, which our experience tells may be expected to yield not more than three hundred pounds net, which we value at twenty cents per pound, giving sixty dollars for the labour of a hand for one year, exclusive of necessary provisions.

Of corn, a hand may plant and attend four and an half acres, which, with proper manuring and attendance, will produce twenty bushels per acre, giving ninety bushels to the hand, which we value at seventy cents per bushel, and which gives sixty-three dollars for corn. An acre of corn producing twenty bushels would yield three hundred pounds of blades, if proper attention be paid to gathering and curing them, the produce of four and an half acres, being one thousand three hundred and fifty pounds, valued at eighty cents per hundred pounds, amounts to ten dollars and eighty cents. On the same land may be raised, at one thousand two hundred pounds per acre, five thousand four hundred pounds of hay, which valued at sixty-two and an half cents per hundred pounds, amounts to thirty-three dollars seventy-five cents. Or, at four bushels per acre, eighteen bushels of cow-peas, which valued at seventy cents per bushel, amounts to twelve dollars and sixty cents. But as there are soils which will not produce peas, and as both crops cannot be expected from the same ground at

the same time, we strike the medium value of the two crops and say—

For hay or peas, - - - -	$23 17
To which add value of corn and blades from 4½ acres, - - -	73 80
Makes the amount of the corn crop, -	96 97
From which deduct amount of cotton crop,	60 00
Leaving the balance of - - -	$36 97

per hand in favour of the corn crop.

Being governed with regard to the cotton crop by what has been experienced, and believing it quite practicable for the quantity of corn stated to be made per acre—the above statement, in our opinion, contains as correct estimates of the value of the two crops as it may be possible to arrive at."

ART. LXI.—*Account of an Agricultural Excursion undertaken by the* EDITOR, *in the Spring of* 1832.

It has been our opinion for some time past, that agricultural excursions into different sections of this and the neighbouring States, would be productive of much benefit, inasmuch as we should be able to collect and make public, much valuable information, which otherwise would never be known beyond the small circle, from which it emanated. In these excursions we would have it in our power, not only to examine into the state of agriculture, and ascertain the modes of cultivating the several crops in different districts, the domestic arrangements and economy of the plantations, but we would be able to gather from the practical planter, details of culture, account of experiments, and opinions of practices, which he would never otherwise dream of communicating to any one, unsolicited, much less for publication in an agricultural journal. Moreover vari-

ous experiments are made, which very often are of great interest to the community, but which the experimenter does not deem sufficiently so to be made public. Some few of these we occasionally hear of, but our chance of obtaining such information is much increased when we go among the planters themselves, and obtain from them in social discourse, accounts of all they have done—their experience, their experiments, and their practices. For, although we have had much difficulty in getting from them written communications on agricultural subjects, yet we have never had the least in obtaining all that we desired, in conversation, and liberty to make such use of it as we might think proper.

It is a misfortune, that so many of our planters have taken up the idea that they have nothing to communicate, because they practice only, what is known to all the neighbourhood in which they reside, and that the experiments they make are of two little importance to be communicated to the public. Both of these opinions are founded in error, and nothing has served so much to injure the good cause. Although it may be true that the practices of an agriculturist, are known and adopted by all of his immediate neighbours, yet it does not follow that they are known twenty or thirty miles off, much less, in the other sections of the State. In fact, how seldom do we find even two neighbours agreeing in all the processes of culture even of one crop, although separated but by a short distance: how then can it be supposed that those who live in different sections of the State, have adopted and practiced the same. This is not, and cannot be the case, for it would suppose a greater similarity of opinions than exist. It is a fact well known to all who have either travelled in these States, or had opportunities of conversing with planters from different districts; that although the leading features of their culture may resemble each other, somewhat, yet in detail, they differ materially. This may be owing in part to the necessity of accommodating the several crops to their respective localities; but this cannot satisfactorily account for this diversity, for there is not any very great difference in climate, at least, not so much as to require the adoption of any essential change. Hence it results, that if a free intercommunication could be established among the planters of the Southern States, and they could be induced freely to communicate their

experience and practices relative to the various crops cultivated, the greatest benefit would result not only to themselves but to the community at large. We have ere this brought the subject before our readers, but as yet not with the success we could wish. It is to be hoped that our planters will yet perceive the benefits which may arise from pursuing such a course and adopt it. In the mean time, we intend as often as our leisure will permit, to make excursions into the various sections of this and the neighbouring States, and shall endeavour to gather as much practical information as we can from such of our planters as are unwilling to communicate otherwise than orally. We hope we may be able to do some good in this way, as we shall notice in these excursions many arrangements of domestic economy, and many practices, which will enable our readers not only to judge of the actual state of agriculture in those places where we shall visit, but enable them also, in some instances, to lay aside that which is bad in their own modes of culture, for that which is better in their neighbours.

We made a short excursion the last year, but had time to inspect but one plantation, *(Poshee)* of which we gave an account in our 4th Vol.—circumstances prevented us from making any other, during the last winter, and, unfortunately, our climate permits these, only during the winter and spring months. We, however, determined to avail ourselves of the frequent and kind invitations we had received to revisit our friends of St. John's and St. Stephen's. Accordingly, on the 11th of April, we set out on our excursion. The early part of the spring had been mild and propitious to vegetation, but a sudden and disastrous check had been experienced, which stayed all further progress, and proved extremely distructive, not only to the fruit, but even to many of the forest trees—some hardy exotics were even killed to the ground. The weather had moderated, and a shower the day previous rendered the travelling very pleasant:—our rout for the first day was through Christ Church Parish.

The main public road through this parish, runs on what may be termed the dividing ridge, which is but little better than a mere pine-barren, running through the center lengthwise, and separating the productive lands, which are to be found only on the river or on the sea-coast. Nearly all of the

plantations are, therefore, situated either on the Wando river or on the sea-board, consequently a traveller can form no idea of the fertility or improvements of this parish by merely passing through. The road, in some few places, approaches the river or the sea-coast, and at each of these, are settlements. On one part of the sea-board, (the Western) the settlements are numerous, and the fields of the several plantations join for many miles. On the river they are not so thickly settled. Both on the river and on the sea-board, long-staple cotton is cultivated as the market crop. Rice is also cultivated by Dr. Weston on his plantation, situated near the head of the Wando river, but his supply of water is from reservoirs entirely. It is likewise cultivated on several plantations situated on the Wappetaw swamp.

The first place we stopped at was "Clay Fields," the residence of Col. J. B. I'On, situated on the Wappetaw swamp, in Christ Church Parish. Unfortunately we found Col. I'On confined to the house by indisposition, and consequently unable to accompany us in viewing his plantation. We, were, however, politely furnished by him with all the information we desired relative to its management during the short time we remained.

Rice is the principal and the only market crop cultivated here. The fields are composed of a stiff blue clay, and are not only productive, but the grain produced is of the first quality. There are several plantations on this swamp, and it is one of the few where the culture of rice has been continued and found profitable. The planters have to depend altogether on reservoirs for their supply of water, which of course renders the crops a little precarious, but not perhaps more so than on those rivers subject to "*salts*" or *freshets*. We visited but two plantations on this swamp, and cannot pretend to state what the modes of culture in general use are; we will, therefore, confine ourselves to those of Col. I'On and Mr. F. D. Quash, premising that in several respects, their neighbours differ from them, owing to their respective situations, and sometimes to a difference of opinion.

In preparing his ground for sowing, Col. I'On permits none of the stubble of the preceding crop to be burned off, but as soon as possible, the whole is turned under by the plough, and the harrow is used to pulverize the soil,

which, however, is not completely effected by that instrument, owing to its great tenacity. It become necessary, therefore, to use some other instrument, and accordingly, when it is time to sow the crop, the hands are sent over with the hoe to pulverize it still more, and render it more fit for the reception of the seed. Where the plough and harrow cannot work, (the sides of the banks, and near the ditches) the hoe is used, both to turn under the stubble and otherwise prepare the land.

The fields being ready, the crop is sown between the 10th and last of April, and he thinks the whole crop ought to be in by the last of that month. The rows are fifteen inches apart, and made with a trenching plough. One and three quarters of a bushel of seed per acre are used, and the sowing is on the *string*, as it is technically termed. It is covered before he puts on water, nor does he think, that the leaving it uncovered and flowing for the purpose of covering, and at the same sprouting, will answer on clay lands: certainly not on his. As soon as this operation is finished, water is let on for the purpose of sprouting the rice; it remains on but for a short time and is run off. Col. I'On does not make use of the "*point-flow*," believing it not to be advantageous, and moreover being dependent on reservoirs for this supply of water, the quantity necessary could be but illy spared. The first hoeing is given when the plants are about fourteen days old, if worked among sooner, it is liable to injury, owing to its diminutive size and the carelessness of the negroes. One other hoeing is given if possible before the *long flow*, which is put on when from five to six leaves are developed. The water is kept on from twelve to eighteen days, and the length of time is determined by the state of the rice. When the *long-flow* is put on, the water is permitted to cover the rice a few inches: not many days elapse before the plant appears above it. At this time it is weak, and the leaves float on the surface of the water: in a short time it recovers its strength, the leaves become erect and its growth is resumed. This does not continue long before it becomes once more stationary; at this period the water is run off, at first by a small leak, until it becomes shallow, and then as fast as possible to prevent it from scalding the rice. As soon as the ground becomes dry enough, it is hoed, well picked and kept as clean as possible until the water is put

on for the last flowing, the proper time for the doing of which is when the two upper leaves have what is called the "*tuck*," which is a crimp across the leaf. As soon as this is discovered, the water is put on (from six to twelve inches deep) and kept on until within eight or ten days of harvest. By keeping on the water longer, the ripening of the grain may be backened, but it is injured, and that in proportion to the time it is kept on beyond what is absolutely necessary.

If the fields are grassy, Col. I'On prefers not putting on the water until they are clean, but sometimes it becomes necessary to disregard this, as greater injury would ensue to the crop if the water be not put on. Should the grass not be easily overcome by the hoe, he thinks it best to put on the water, and run the rice and grass up together, which will permit it to be easily selected and picked out from the rice. He considers the crop fit for harvesting when the whole of the ear, except a few of the lower grains, are ripe, by waiting until the whole is perfectly mature, the grain is injured and the waste, by shelling, is very great. If all of the squares appear likely to be fit for the hook about the same time, it may be advisable to backen some of them by keeping water on, but if this is continued for any length of time, the quality of the grain is injured, as we before observed. In harvesting, each hand cuts on the first day a half acre, the next day he cuts a quarter of an acre, and binds up and carries home a quarter.

All of the crop is prepared for market on the plantation, by a small mill worked by animal power. In almost all cases we should suppose it advantageous to the planter to make use of these machines, or similar ones on his plantation, especially such as are so situated as to command a full supply of water. We do not mean those large and expensive mills, which can be built but by a few, and which must depend in a great measure on toll, for the defraying of the necessary expenses and interest on capital, for but few planters can afford to subtract so much from their agricultural pursuits, and thus vest it, but we mean such as will suffice merely for the getting out of the crop of the plantation. Where water-power can be used, so much the better, but where this cannot be applied, than a resort to animal power, as has been done by Col. I'On, Mr. Quash, and several others, might be had, for the

advantage of beating out the crop on the plantation is great. Not only is there a saving in barrels, (if it cannot be sent in bulk, which sometimes is the case) but also in freight, this, however, perhaps is the least. All of the offal being on the spot, many benefits arise, the flour can be most advantageously used in the feeding of horses, mules, cows, hogs, sheep, and even poultry—though if the mill be near the dwelling, the broken rice which always is to be found in the chaff, will prove sufficient for a stock of the latter, larger than is kept by most planters. The small rice can either be sent to market with the rest of the crop, or used on the plantation as is sometimes done, even when it is necessary to freight it back again to the plantation. Nor is the chaff a mere incumberance, but on the contrary, if the upland soil consists of clay, it will be much benefited by its application, for it has been proven to be most excellent as a manure for such, acting both mechanically and chemically, and we have seen fields which have been rendered highly productive by the free use of chaff. Nor can it fail to be useful on those of a lighter texture, and we have here already prepared to our hands, what Sir Humphrey Davy so strongly recommends, differing very little but in name.

It will be recollected that Sir Humphrey Davy, in his lecture on manures, observes:—

"There can be no doubt that the straw of different crops immediately ploughed into the ground affords nourishment to plants; but there is an objection to this method of using straw, from the difficulty of burying long straw, and from its rendering the husbandry foul.

"When straw is made to ferment, it becomes a more manageable manure; but there is likewise on the whole a great loss of nutritive matter. More manure is perhaps supplied for a single crop; but the land is less improved than it would be, supposing the whole of the vegetable matter could be finely divided and mixed with the soil.

"It is usual to carry straw, that can be employed for no other purpose, to the dunghill, to ferment, and decompose; but it is worth experiment, whether it may not be more economically applied when chopped small by a proper machine, and kept dry till it is ploughed in for the use of a crop. In this case, though it would decompose much more slowly and produce less effect at first, yet its influence would be much more lasting.*

* Elements of Agricultural Chemistry.

It will be seen from the above extract, that Sir Humphrey Davy's opinion is, that straw chopped fine is fitter for manure than long straw, or that which is partly decomposed. Rice-chaff differs but little from chopped-straw, and no doubt would prove equally as beneficial.

There is, however, another reason which induces Col. I'On to prepare his crop for market in addition to the advantages enumerated above, and the saving of the toll, which of itself is, to many an object of some consideration. It is, that the nearest distance to a landing is (we believe) five miles, and the labour of carting the rice in the rough that distance, would be double.

Corn and potatoes are cultivated on this place in sufficient quantities for the use of the plantation. The root potatoes are never housed, but kept in the original beds in the field and taken from thence as wanted, the only precaution used, is, to draw a little earth over the tops of the beds. In this way they were preserved the last year until the 1st of January, notwithstanding the severe cold we had in the early part of the winter. The slip potatoes are housed early in November, whether there has been a frost or not, for he thinks that when this is delayed longer, they are invariably injured by the cold weather, which occasions them to rot. These potatoes are kept in large cellars. The one which we examined was fifty feet long; the rails twelve feet and supported in the center by pieces placed about midway the whole length of the cellars. They are banked up to the top, and care is taken to keep them very close. No air holes are allowed, the door-way is placed in the centre and faces the south, two doors are used, one an open latice, to be used to give air to the potatoes, the other close, and is kept shut whenever the weather is cold. A smoke is kept up in the cellars constantly, until they have passed through the first sweat, after which it is discontinued—managed in this way they keep better than in any other he has tried. He has endeavoured to preserve them in close houses made with double sides, and these filled with clay and the loft with straw. They, however, did not keep any better in this way than in common cellars.

From Col. I'On's, we passed over to "*Withywood*," the residence of F. D. Quash, Esq. situated on the same swamp, and we believe at its head. We found him busy in planting

his crop. A part of his rice had been sown, and the remainder of the fields were ready, but owing to the great fall of water recently, he deemed it better to wait a few days until the surface became dryer, and in the interim, to plant his corn-crop, at which work we found him engaged. Mr. Quash has much improved this place since it came into his possession, and although there is and has long been a strong prejudice against inland-swamp-rice plantations, yet we doubt whether many river plantations of the same extent and number of workers, produce a greater net profit. This is owing somewhat to the intrinsic merits of the soil, (a stiff blue clay,) and also somewhat to the judicious management of the proprietor.

There is attached to the place an extensive reservoir which could be much enlarged, if it should ever be found necessary—at present, the one under embankment is amply sufficient. Hitherto the great difficulty has been to get rid of the water in cases of sudden and heavy falls of rain, and the crops were at one time liable to much injury from this cause. To remedy it, and place the management as much as possible within his control, he has dug a canal extending a distance of more than four miles, through which he now vents his surplus water, and which in ordinary cases is amply sufficient for this purpose. Since this has been effected, his crops have been more certain, and the product greater. The quality of the rice made on this place, is considered as of the very best and commands the highest price, and in such estimation is it held that a large quantity is annually sold for seed, to other planters. Mr. Quash possesses here an advantage which but few rice planters have, which is, a complete change of fields, and which he regularly alternates.

In preparing his fields, (which is done as early in the winter as he can conveniently) he uses the plough, working it as deep as possible: the harrow is then used, and the whole afterwards made finer with the hoe. The preparation of the soil for the reception of the seed, he believes to be a very important operation, and considerable attention is paid to it. The trench plough is used for making the trenches, which are sixteen inches apart. The rice is sown in the rows about four inches in width, and two bushel of seed are used per acre. The whole is covered lightly with beaters, and water is put on for a short time to sprout the rice. With respect to the trench-

ing, Mr. Quash would prefer using the hoe to the plough, as it not only makes neater work, but also makes the trenches more regular and *shallow*, which he deems important, believing that shallow sowing is better, and that the rice when thus treated will tiller more. We have seen that he prefers covering to open-trench planting. Mr. Quash thinks that on light land, this plan would answer very well, and save much labour, because there the water would wash enough of the earth from the sides of the trenches to cover the grain, but this he does not find to be the case on such stiff clay soils as his, and consequently its safety cannot be insured even after it has taken root and the water drawn off. Owing to the same cause that prevents Col. I'On, (depending on reservoirs) he does not *point-flow:* he thinks, however, it may at times be used with considerable advantage.

Mr. Quash hoes his rice twice if possible before putting on the *long-flow*, which (unless to destroy grass) is not kept on longer than ten days. By many planters this *flow* is kept on for a much longer period, but he thinks the time which then elapses between this and the harvest-flow is too short. It sometimes become necessary to put on the water before the rice is hoed at all: when, for instance, there is much grass, which cannot be easily conquered with the hoe, but which is destroyed by water. Sometimes it is deemed proper to put on the water for the purpose of running up those grasses which cannot be destroyed by water. When this is done, they are easily distinguished and eradicated from among the rice. Nor ought this to be long delayed in such cases, for the rice is more injured by grass than it is from any other cause, in fact, a tolerable crop may be made by the use of the water alone, but no crop can be made when the fields are infested with grass unless they are got rid of, and that at an early period. After the *long-flow* is drawn off the rice is kept as dry as possible, until the time for putting on the harvest or last flow. In the mean time it is hoed lightly, (just sufficient to destroy the grass) and hand picked. He does not think it ought to be hoed either deep or as late as the appearance of the first joint, because the roots are more or less injured by each of these operations, and the greater is it, the nearer it is to the time of jointing, for at this stage of growth, a plant requires the aid of every root, and although previous to this time, it might not have been

injurious to cut them, but on the contrary beneficial, because new ones were speedily produced; yet when the plant is about shooting into joint, it requires the aid of all, for its growth is then more rapid than at any other period, and if any of these are destroyed it has not time sufficient to reproduce them, receives a check, and is affected in proportion to the injury its roots have received. The water, (which should be frequently changed during this flow,) ought to be turned off about eight or ten days previous to harvest; this, however, is not always done, for although all planters, we believe, concur in its propriety, yet circumstances very often prevent, and frequently the reapers are necessarily sent in as soon after, as the fields become dry enough for them to work in. The rice is cut whilst a few grains of the ear still remain green.

Mr. Quash has erected on this place a small but very excellent mill, worked by animal power, and as he has seven miles to cart his rice, the saving to him of labour in the cartage is considerable, whilst at the same time he possesses all of the advantages to be derived from beating his crop at home. We did not examine into the culture of his other crops, with such minuteness as would enable us to give any satisfactory account. All that we ascertained was that his crops of corn have been cultivated on the same fields for a number of years, that he manures them highly, and that they have increased in product yearly. The manure is applied in the furrows, and listed on, and so much is used that in forming the beds, (at which operation they were engaged whilst we were there) the manure used the last season is perceptable in large quantities almost every where. This being well rotted, furnishes food for the roots of the corn whilst yet young, and that which is placed beneath furnishes a supply when the plant is more advanced. More provisions are raised annually on this place than are sufficient for its consumption. The corn is the finest and purest flint we have ever seen, taking it as a whole. From "*Withywood*," we proceeded across the country, to "*Campvere*," the residence of Col. John Bryan, situated on Cooper river—of which place and such others as we have seen, we propose giving an account in our succeeding numbers.

(*To be continued.*)

Art. LXII.—*Proceedings of the Horticultural Society of Charleston.*

The general exhibition of the Horticultural Society was held at Seyle's Long-Room, on the 23d of May last, and although the season had been very unfavourable, it was the finest ever held in this place. The interest taken in it was greater than we have ever witnessed, and we trust it is a sure presage of support on the part of our citizens to this highly useful Society. At a very early hour, (sometime before the period announced for opening the doors had arrived) the hall was crowded with ladies, whom the courtesy of the officers could not permit to remain in the porticoes, but invited in, even before the articles sent for exhibition could be properly arranged. Throughout the day the Hall was constantly filled with ladies and gentlemen, and several times we found it impossible to move from one part of the room to another. The room, although large, was found too small for the occasion. We cannot give a better account of the exhibition itself, than by publishing that drawn up by the Committee, and which is as follows:—

"The annual exhibition of the *Horticultural Society*, was held at Seyle's on the 23d inst. An exhibition of this description was novel to the citizens of Charleston, and in no small degree interesting. Considering the character of the season, it was to have been expected that the display would have been deficient in beauty and variety, and it is much to the credit of the community, that under many discouraging occurrences so much has been effected.

"It was with some degree of exultation, that we found the hall of Mr. Seyles, well furnished with a choice collection of Flowers and Vegetables. Seldom have we had an opportunity of seeing more to attract, either in the rareness of the flowers, the beauty of colours, the elegance of the specimens, or the taste displayed in their arrangement. To a mind disposed to dwell upon the beauties of creation, the exhibition was well calculated to kindle emotions of the most agreeable kind, and to warm the heart with feelings of gratitude and love. Such exhibitions (independent of the peaceful character of the occupation in rearing) are calculated to make men better and wiser, to make them feel that they live not for themselves alone, and to wean them from the selfishness and sensuality to which too many, from inclination and the want of a pursuit, are apt to become victims. We trust, therefore, that a beginning so auspicious will be followed each succeeding year with a larger number of votaries and of offerings, and that our Carolina may in time resemble that fair country which the poet so prettily describes, in which

> "Blossoms, and fruits, and flowers, forever rise,
> And the whole year in gay confusion flies"

"*Of Fruits*—From the severe frosts late in the spring, there was a great deficiency. We noticed, however, a few cherries and plums, from the garden of Mr. J. Michel, a gentleman who has taken great pains to introduce the finest fruits of France, and has been so far successful. There were also exhibited Strawberries, and two kinds of Raspberries, from the garden of Mr. James Nicholson.

"*Of Vegetables*—Although there was not as great a competition as was expected, yet such as were sent were very fine; and it might be questioned whether any city of the United States could have exhibited, at this season of

the year, superior Artichokes, Potatoes, Turnips, Sea-kale, tart Rhubarb plants, Cabbages, &c. The good effects of the Society have already been exhibited in the successful cultivation of several vegetables to which our climate was considered hostile; of these we may mention several varieties of Turnips, Sea-kale, tart Rhubarb, (Rheum undulatum) and others, by Mr J. D. Legare. The specimens of the last plant were particularly fine, and we may observe that a gentleman present who had witnessed a similar exhibition of the Horticultural Society of Liverpool, pronounced these plants equal, if not superior, to those of which the premium had been awarded by that Society.

"The Sea-kale was also for the first time exhibited. This vegetable, prepared and eaten as Asparagus, is said to have a fine flavour, and to be highly prized by the epicures of Europe.

We noticed two plants of the Cow-cabbage. This is a species which in its native climate rises to the height of 7 to 12 feet; the full grown leaves being gathered as fodder for cattle, while the younger leaves are used as greens for the table. As the plant flourishes for three years before seeding, its utility is obvious, and it has been said that half a dozen plants will feed a cow throughout the year.

"Carrots from Mr. Hume in seed. The seeds of this plant have been cultivated by Mr. Hume for the last forty years, and the growth of the roots remarkably fine. That the seeds have not deteriorated by climate, is proved by this circumstance, that for roots obtained from these seeds, a premium was bestowed upon Mr. James Mathews, at a late meeting of the Society.

"The Society were much gratified with the interest exhibited by the ladies in their cause—who not only have been active contributors to this exhibition, and others during the year, but on this occasion added much by their presence and approving smiles, to the pleasure experienced.

"In noticing the plants exhibited, we can only glance over the most important, regretting that we cannot enter as much into details as we desire.

"*Plants sent by Miss Stone*—Exotics—Plants: Ficus elastica, (Indian Rubber Tree) Ficus Vestita; Ficus australis, (Banyan Tree of Austral Asia); Ardisia crenata, (Coral Tree); Eugenia Jambos, (Malay Apple Tree.)—Flowers—three varieties of Carnations; several species of Dahlias, one of which was thought to be the handsomest ever grown in the city, (of a *globular form,*) with several others, very pretty and interesting.

"*Plants sent by Mr. Nicholson.*—A great variety of beautiful Dahlias; a specimen of a Helianthus, or Sun Flower, 2½ feet in height, bearing twenty-seven flowers, with others; also, a new species of Grass, found by Lewis & Clarke, of the genus Holcus, remarkable for its soft velvet appearance and feeling.

"*From Mrs. Davis.*—A fine plant of the genus Jasminum trinerva, in a box—large Geraniums in jars, &c.

"*From Mrs. Cochran.*—A handsome collection of Garden Plants.

"*From Mrs. Bachman.*—The Campanula medium, (Canterbury Bells); the Amaryllis Gigantea, with others.

"*From Mrs. William Johnson.*—A handsome Plant of the Digitalis Purpurea, or Foxglove.

"*From Miss Winthrop.*—A handsome bouquet of Flowers, containing several pretty Dahlias, and others.

"*From Mrs. Russell*—The Tigridia Pavonia, a remarkably handsome Flower.

"*From Mrs. Hoff.*—A Wax Plant in bloom—Haya carnosa.

"*From Mr. Noisette.*—The Strelitzia Regina.

"*From the Botanical Club.*—Several large buoquets of Indigenous Plants, some very beautiful, and worthy of general cultivation.

Flowers and Plants.

"The premiums for the best were awarded as follows:—

"For the most beautiful Flower from an Exotic Bulb—the Silver Medal, to Mrs. Russell, for *Tigridia Pavonia.*

"For the most beautiful Exotic Flower—the Silver Medal, to Miss Stone, for the *Globe Dahlia*.

"For the most beautiful Buoquet of Flowers—the Silver Medal, to Mrs. Cochran.

"For the most beautiful Indigenous Flower—the Silver Medal, to Mrs. Davis, for the *Spirea salicifolia*.

"For the most Ornamental Plant—the Silver Medal, to Miss Stone, for the *Ficus Elastica*.

Vegetables.

"For the best Onions, to James Mathews.
"For the best Parsnips, to J. A. Winthrop.
"For the best bunch of Swiss Chard, to J. D. Legare.
"For the best Tart Rhubarb, do.
"For the best Sea-Kale, do.
"For the best Turnips, (White Stone,) do."

At a regular meeting of the Society held on the 13th of June, the different Committees reported the several awards of premiums which they had made. The Committee on Flowers in addition to those stated above, recommended that other premiums be awarded. The following extract is from the commencement of their report:—

"The Committee on Flowers report, that at the meeting of the Society in 1831, the Committee recommended that the following persons be entitled to such rewards as the Society might decide on.

'Mr. James Nicholson for the best bed of Hyacinths.

'Mrs. William Johnson, for the best bed of Tulips.

'Mrs. Eliza C. Cochran, for the finest show of Roses the Committee ever inspected; she having had 47 kinds in bloom during the present season.

'Mrs. Eliza C. Cochran, the finest Amaryllises.'

"Some of the bulbs and shrubs, however, mentioned above, were not in bloom until after the month of May, when premiums were to have been awarded; the Committee suggested that the field be still left open for competition, until the end of the season of flowers. Your committee now recommend that premiums of the Silver Medal be awarded by the Society to the above named individuals.

"During the last Autumn and in the course of the present year, a considerable variety of very beautiful flowers were sent to members of this Committee for their inspection, and we were particularly indebted to the ladies for having from time to time graced the Hall of our Society, with the most splendid bouquets of flowers."

The following is the report of the Committee on Fruits:—

"The Committee on Fruits, of the Horticultural Society of Charleston, have to report, that they have but little to communicate to the Society for the past year, in the department which comes

under their immediate notice. The season, it will be recollected, was exceedingly unpropitious to the growth and maturity of fruit in general, and besides, there is every reason to believe, that, although the Society had existed for more than a year, this was not very generally known, or the nature of its objects perfectly understood. They hope, therefore, better things for the future; and the zeal which has been lately shewn by some of their fellow-citizens, in ornamental gardening, and in the culture of vegetables, encourages them to think, that the example will not be lost upon those who are more interested in this, and that, that hope will not be disappointed.

Among the variety of articles exhibited at various times, the Committee take great pleasure in recommending that the Gold Medal be awarded to Mr. S. L. Simons, for the largest piece of land cultivated in Strawberries, not less than half an acre; and that the Silver Medal be awarded to Judge Johnson for the best dish of Strawberries. They would willingly have extended the same recommendation to Mr. J. Michel, for the introduction into this country of the Early Green Apricot Prune, and to Mr. Elfe, for the Carbuncle Rock Cantelope Melon; but they are restricted, and prevented from so doing, by the terms of the public notification put forth by the Society. It only remains for them, therefore, to commend to their approbation and favourable notice, the following individuals, for the specimens annexed to their respective names.

"Mr. J. Michel, for the introduction of the early Green Apricot Prune, (the largest species) from Tour.

"Mr. J. Michel, for the introduction of the Early Blue Empress Gage, (largest species) from Portugal.

"Mr. Elfe, for the introduction of the Carbuncle Rock Cantelope, from France.

"Pears, Melons, Peaches and Grapes, were exhibited at almost every meeting during the summer; but as none of them were offered for premiums, the Committee are induced to pass them over, with this simple recital of the circumstance.

Respectfully submitted,

JAMES MOULTRIE, Jun.
Chairman of the Committee on Fruits."

The Committee on Vegetables had made reports relative to those articles which had hitherto been offered to their inspection for premiums. They had, therefore, nothing further to report on, than the vegetables offered at the general exhibition in May. For these they recommended premiums to be awarded, as stated above, in the account of the Standing Committee.

The reports of the several Committees having been gone through with, it was on motion resolved, that they be accepted, and their awards confirmed.

After the reports had been gone through with, the Chairman of the Committee on Fruits, offered the following Resolution, which was unanimously adopted:

"*Resolved*, That a discretionary premium of a Silver Medal be awarded to Mr. J. Michel, for his particular and successful attention to gardening, and for the introduction into this country of the Early Green Apricot Prune, from Tours, and the Early Blue Empress Gage, from Portugal."

We have given above a concise sketch of the proceedings of the Society on the 23d of May and the 13th of June. We were absent in April when the exhibition of Flowers should have taken place. The exhibition in consequence of the unfavourableness of the season was postponed to May. We understand, however, that some splendid bouquets of flowers were sent to the Society on that day, by Mrs. William Johnson and Mrs. Cochran. Mr. Noisette, also sent a very fine plant of the *Strelitza regina*, in bloom.

At the regular meeting in May. Mrs. William Johnson sent some fine specimens of the *Degitalis purpurea*, and a plant of the *Cactus speciosissima*, in bloom. The beauty of the flowers of the latter were greatly admired, and certainly deserved the high praise bestowed. This plant was introduced several years ago from Europe, by Mr. James Nicholson, by whom it was presented to Mrs. Johnson, but this is the first plant which has been flowered in this city; and Mrs. Johnson certainly deserves much credit for her skill and assiduity in cultivating it. Mrs. Cochran also sent a most beautiful boquet of flowers, which was much admired by the amateurs.

The premiums which the Society have awarded, will be delivered at the anniversary meeting in July.

PART II.

SELECTIONS.

[With the present, we close our extracts on "Planting;" we believe we have given all which will interest our planters, but should any wish further information, we refer them to the work itself, which is a most useful and valuable one. When the subject of fruit trees is taken up we will resume our extracts.]—*Ed. So. Agr.*

Art. XXXVIII.—*On Planting.*

[FROM THE LIBRARY OF USEFUL KNOWLEDGE.]

(Concluded from page 325.)

The third and last mode of rearing forest trees proposed to be discussed at the head of this chapter, is that of selecting the superior shoots of coppice stools, and training them to full-grown timber tress. The oak, on account of the value of its bark, is more frequently reared in this way than the elm,* ash, and chesnut. The timber of coppice trees is in general faculty, and of inferior quality to that reared from seed. Where care, however, is taken in the selection of the shoots from healthy and not over-aged coppice stools, timber of the best quality may be obtained from them.

The produce of coppice stools consists of materials for fence wood, fuel, besoms, &c. Poles and bark are the most valuable of this produce, where the practice is to leave no standards, or saplings for timber. It is, however, perfectly clear, that when a wood or coppice offers to the purchaser produce of various sizes convertible to various uses, along with full-grown timber for navy purposes, the sale is more readily effected, and generally on bet-

* *A great part of the elms (ulmus campestris) reared in Devonshire are from layers, and frequently defective at the most valuable part.—Vide Vancouver's Survey of Devon.*

One or two fertile tracts in Devon, where the soil is of the nature termed red sand-stone, is more favourable to the growth of the elm than to any other tree.—*Mr. Kingston.*

ter terms, than when the produce consists of smaller wood only. In making choice of the shoots of coppice stools to be trained for timber trees, great care should be had to select none but such as are straight and vigorous, and which originate as near to the roots of the stool as possible. The neglect of this latter circumstance is the chief cause of the unsoundness of coppice-reared timber, particularly at the root or *butt* end of the bole. The *parent wood* of coppice stool is most frequently suffered to rise too high from the roots, consequently the shoots emitted from it never grow with so much vigour, or attain to so great a size in a given space of time, as when the stool is kept within an inch or two of the surface of the ground. When the parent stool is a foot or more in height from the root, it becomes divided into pointed rugged parts, and if a tiller or shoot, left for a tree, is situated near to one or other of these, the *stub* is in time encompassed by the bark of the young tree wholly or partially, which causes blemish and unsoundness in the timber, as well as obstruction to its prosperous growth. The stumps of coppice stools should, therefore, be cut near to the surface of the ground, and the face of the *stubs* as level and free from fractures as can be. The kinds of trees most profitable for coppice produce are those which possess the reproductive power in the highest degree; these were enumerated in a preceding page. It may be unnecessary here to observe that the non-productive trees, such as all the pine and fir tribes, are unfit for the purposes of coppice. The shoot, or tiller, being selected with due attention to these essential points, all other shoots belonging to the parent stool should be cut away close to the root. The young root should then receive the same treatment as other trees reared by seed or transplanting. Although, under any circumstances, it cannot be recommended to convert a coppice wood into a timber grove, nevertheless, should the circumstance of local demand for timber trees be considerable, it is highly profitable practice to allow a certain number of the most select oak tillers to remain for timber. Should the number finally left to become timber trees not exceeding thirty on the space of an acre, the coppice produce will not receive any injury to be put in competition with the value of the trees retained. Were one hundred select tillers left on the cutting or fall of a coppice, and were the periodical falls made at eighteen years interval of time, on the second cutting these tillers would be thirty-six years old, and worth from 10*s.* to 12*s.* each. At this period of growth twenty-five of the number should be taken away, leaving an average distance between those that remain of about twenty-four feet. At the next fall the trees will have attained to fifty-six years' growth, and will afford seventeen trees to be thinned out, of the value of 22*s.* each. At seventy-two years' growth the value will be increased to 38*s.* each tree, and allowing fifteen trees to be thinned out. At the fourth, or last

thinning, the trees will be ninety years of growth, and worth at least 50*s.* each, leaving thirty timber trees, of which a part will be fit for ship-building, and exceed in value the fee-simple of the land. Land requiring a period of eighteen years to produce coppice-wood fit for cutting or a fall, cannot be worth more yearly than 10*s.* per acre in husbandry; consequently the rent of the land and cost of culture of the coppice is covered by these thinnings of the timber trees, leaving periodically the proper coppice produce, and at the termination of one hundred years the valuable trees above mentioned as clear profit.

The age at which coppices should be cut down varies according to the soil and their quickness of growth. Nine years may be considered the shortest period, and thirty years the longest, as oak-bark, which constitutes a valuable part of the produce, does not improve in quality after that age. Eighteen years' growth is about an average period for coppice-wood, and the average returns from bark and wood £21 an acre.*

The comparative merits of the three different modes of rearing forest trees, proposed to be considered at the head of this chapter, will have appeared, from the facts brought forward, to be greatly in favour of transplanting young trees of proper sizes and age, from the nursery beds to their timber sites, whether in regard to economy in the first and subsequent outlay of capital, in making and rearing the plantation, or in respect to the quantity and quality of timber produced on a given space of land, and in a given space of time. The rearing of oak timber from seed on the spots where the trees are to remain for timber is, however, an exception to the above conclusion under the following restrictions; namely, that the acorns of the variety of oak *(Quercus robur vel longipedunculata)* can be obtained of good quality, at a reasonable cost, in sufficient quantities; that the land to be sown is in a perfect clean state of culture, in *good heart* on the surface, and free from stagnant moisture; that labour is cheap; and that ample and complete protection from the attacks of vermin can be ensured to the acorns, and to the seedling plants till they equal in size three years old nursery plants. When all these circumstances can be combined, then the mode of rearing the oak on its timber site from seed should be adopted, but not otherwise, or disappointment will be certain to follow.

Simple plantations consist of one or two species of trees only; *mixed plantations* of many different species. The latter on suitable soils, are the most profitable; they afford an earlier, more permanent, and a larger return for capital than simple plantations. The judicious arrangement of the different forest trees, not only promotes the greatest returns of profit from the planta-

* There are instances of coppices affording returns of 50*l.* sterling profit per acre.

tions, but likewise effects the highest embellishment to the estate and surrounding country.*

Shelter in winter and *shade* in summer are also important points. Evergreen trees, and such deciduous ones as retain their leaves to a later period of the year (the hornbeam, beech, and some varieties of the oak) afford much greater shelter in winter and in early spring, when it is most wanted, than those which lose their leaves early in autumn, and should, therefore, be planted wherever shelter is most desired. Shade is best afforded by trees which, rising with naked stems to a certain height, afterwards sends out an extended series of branches, as the oak, beech, chesnut, and elm, which can be readily trained to that state by pruning, and their spreading branches and umbrageous foliage are highly superior for this intention than those of the ash, sycamore, plane, &c.

Although mixed planting, as just now observed, is the most profitable, and, under skilful massing and grouping, the most embellishing to the landscape, yet there are certain circumstances connected with the growth of the various species of forest-trees, which, when they occur, effectually control the choice of the planter in his modes of arrangement: these are, first, the peculiar nature of the soil to be planted; secondly, the climate, or the exposure or elevation of the site of the plantation. In planting, soils may be divided into *simple* and *mixed*. The latter allows of the fullest scope to mix planting. *Simple* soils are those which contain the smallest number of ingredients in their composition, or which consist chiefly of one substance; as sandy soils, containing from nine-tenths of sand (the maximum at which the successful culture of the white field turnip is supposed to be limited) to one-twentieth, the supposed point of absolute sterility for even common herbage, are properly termed simple sandy soils, and on which the pine, fir, larch, and perhaps the birch, can only be planted. Soils consisting of from seven-eighths to a larger proportion of chalk will rear the beech chiefly; and when the proportion of one-half of vegetable matter to one-half of sand and loam meet in a soil, it is properly simple vege-

* Planting the same sort of trees in masses was originally practised at Blair Adam, *e.g.* Half an acre of oaks, half an acre of beeches, half an acre of elms, half an acre of Spanish chesnuts, &c. This was altered for a mixture of different forest-trees, but Lord Chief Commissioner Adam has resorted recently to the original practice, especially on the sides of hills. His reasons for this is, that mixing trees of different sorts (their growths being unequal) leads in thinning to sparing the more forward tree, though the tree of less value: whereas, uniting the same species of tree in masses, insured their growing pretty nearly in an equal degree, so that the choice in thinning securred the preservation of the best growing tree: and with regard to the effect of embellishment, the large masses of different colours, especially on the slope of hill, appears to have more effect in point of grandeur than intermixture, the latter being more adapted to pleasure-grounds and the woodlands near a residence.

table earth, and comes under the denomination of peat, of which there are several kinds, but will be more particularly mentioned under the head of soils. On this last-mentioned soil the planter is chiefly confined to the abele, poplar, and alder: the willow and birch only partially succeed, or when the vegetable matter is in a less proportion to the other ingredients above stated.

The elevation of the site of the intended plantation above the level of the sea, where that is considerable, influences the local climate so much as often to confine the choice of the planter to one or two species of trees only, even though the soil should be otherwise favourable for mixed planting.

It is calculated to an elevation of six hundred feet, diminishes the temperature of a site equal to that of one degree of north latitude; the degree of dryness or humidity of the atmosphere, and the force of the winds seems also to increase in proportion to the elevation of the land. Accordingly we find that different species of trees occupy different regions and degrees of elevation on the mountains of the torrid, temperate, and frigid zones.

According to Humboldt, the trees which grow in the highest elevation are the pine and the birch, (these also may be observed will flourish in the lowest situations, the birch in particular will grow in soils periodically overflowed or covered with water for two or three months in a year.) The highest altitude of the growth of the pine is stated to be from twelve thousand to fifteen thousand feet above the level of the sea, in latitude 20°; and the limits of the growth of the oak appears to be confined to ten thousand three hundred. The last species of trees found nearest to the limits of perpetual snow on Mount Caucasus, in latitude 42½°, and on the Pyrennees, are the common birch *(Betula alba,)* and the hooked pine *(Pinus uncinata,)* and the red spruce fir *(Pinus rubra.)* On the Alps, latitude from 45° to 46°, the common spruce appears limited to an elevation of about five thousand nine hundred feet. In Lapland the birch is found at the altitude of one thousand six hundred feet in latitude 67° and 70°.

The influence of different altitudes on the distribution and growth of forest trees, is evident even in the inferior elevations of the forests of Britain. The pine, fir, and birch occupy the highest points;* next the sycamore and mountain elm; lastly, the oak, beech, poplar, ash, and chesnut. When the ground to be planted is, therefore, so high above the level of the sea, as to influence materially the nature of the climate, the forest trees to be planted should be selected according to the above principles. In practice this may be termed *region planting*. By imitating the natural process in this respect, not only the most profitable

* *The Mountain ash occupies some of the most exposed of the Dartmoor Fens.—Mr. Kingston.*

returns which the site and soil are capable of producing will be secured, but also the most ornamental effects produced on the landscape, and the useful ones of judicious shelter obtained. It generally happens in extensive planting that the soil varies in different parts of the site in its properties and fitness to rear one species of tree better than another. When these different soils are, therefore, planted with different trees best adapted to each, masses of diversified outline will adorn the landscape, having all the effect of a tastful design, and the trees will be individually of the most healthful growth, a point of the last impertance in ornamental effect.

Experience proves that, for elevated situations, the Scotch fir, *Pinus sylvestris*, the Norway spruce, *Pinus abies*, the larch *Pinus larix*, the hooked pine, *Pinus uncinatus*, the birch, *Betula alba*, the sycamore, *Acer pseudo-platanus*, and the mountain ash, *Pyrus aucuparia*, are the most profitable: these, with the silver fir, *Pinus picea*, black Italian popla, *Populus nigra*, the alder, *Alnus glutinosa*, and the Bedford willow, *Salix Russelliana*, according to the soil, are also the best adapted to plant as nurses for rearing the more valuable timber trees.

For low, damp, and boggy soils, the alder, ash, birch, abele-tree, and the willow, are the best.

To resist the effects of the sea-blasts, the sycamore, pinaster, yew, and laburnum have all been found superior to most kind of trees. The live oak is a very tender tree, and will not exist in England. The habits of the live oak *(Quercus virens)* offer a prospect of this tree being serviceable for the above important purpose. It is a native of South-Carolina, and there it is seldom found above twelve miles from the sea-coast. It thrives best when growing on isolated spots or little islands entirely surrounded by salt water. On the estate of Middleburg, situated on the Cooper river, twenty-four miles from Charleston, South-Carolina, belonging to J. Lucas, Esq. of New Cross, Surrey, live oak averaging twenty-five feet in height, and nine inches in diameter, were selected from the woods by that gentleman and planted in the form of an avenue to his residence. The trees were taken up with as many of the fibrous roots as possible. The tops were lightened by partially reducing the size and number of the branches. Every tree succeeded well, and in the space of two or three years from the time of transplanting they were not to be distinguished from those in the neighbourhood which had grown unmolested. These facts shew that this tree is of hardy vivacious habits, and being also an ever-green, warrants a fair trial of its merits on the coasts of England.

Transplanting trees of large growth for immediate effect properly belongs to another division of the subject, ornamental planting. It may not be unnecessary, however, to state shortly the principles of the practice as lately brought forward by Sir H.

Stewart, in his *Planter's Guide*. These are to take up the tree, with all its roots, fibres, and rootlets, and also the green and external system of branches and buds entire and unbroken, then to transplant these roots, rootlets, and external system of the tree in the same perfect state. The soil into which such trees are transplanted should be of a superior quality to that from whence they were taken, or at least that portion of it applied immediately to the rootlets should have an addition of very rotten manure. A point of great importance to success is the selection of the subjects. 1st. The tree should have a superior thickness and induration of the bark compared to that of trees which have grown up in a crowded state. 2d. Stoutness and superior girt of stem. 3d. Numerousness of roots, fibres, and rootlets. And, 4th, extent, balance, and closeness of branches. Where a tree, otherwise desirable, possesses not these protecting properties, it should be provided with them previous to transplanting by uncovering the roots partially, so as not to injure the stability of the tree during the process. To these exposed roots is applied a compost of fine earth, into which they shoot, and produce in two or three years numerous rootlets fit for transplanting. The overgrown branches are reduced so as to balance the top on every side, if it require it. To assist the bark, such trees as intercept the air and solar rays are removed. These effects are also produced to the roots by cutting a trench at the proper distance from the stems round the roots, and filling up the trench with good soil; in two or three years, the roots will be increased in numerous ramifications as in the former mode.

Art. XXXIX.—*The Mulberry Tree, Silk Worms, &c.*

[FROM THE GENESEE FARMER.]

Translated from the French for the *Genesee Farmer*, from a work entitled "*The Practical Course of Agriculture.*"

(Concluded from page 331.)

The moutee of Silk Worms, or period when they spin their cocoons.—During their last ten days of the *briffe*, (greediness,) the worms is from 36 to 42 lines in length—its skin is entirely filled—its great hunger has passed—its colour becomes clear and transparent—it void its excrements—it diminishes in size; and is what is called ripe or turned. Then it crawls about from

one side to the other; if it is not watched it climbs up the sides of the frames, and tries to spin its cocoon in the highest place it can reach, or in the corners of the walls.

When the worms have arrived at that point of maturity that they will no longer eat, no time should be lost in preparing them lodges proper for them to spin their cocoons upon. Furze, broome, branches of lavender, or any kind of shrub, is generally used; but whatever may be the kind of branches, they should be dried, and stripped of their leaves.

The best manner of disposing the branches or twigs of plants for the worms, is to form with them a continued arch along the shelves. They may be done up in little bundles, which should be placed near one another, by propping the foot on the lower shelf, and bending the top in the form of a semicircle against the shelf above it, as if it were intended to support it: the branches which thus form the arch should be placed at proper distances so that the worms can easily pass between them.

It is very important to put only those worms under these arches which are ready to spin their cocoons; otherwise it would be necessary to feed them; they would escape on all sides without fixing themselves, and would cause much trouble. Nevertheless, it is necessary to prevent their escaping to spin their cocoons, because in doing so they would loose much silk in seeking out a place to fix themselves.

Before changing itself into the chrysalis, the worm choses the place convenient for spinning its cocoon: it commences by fixing its point d'appui, which are short threads of silk drawn from its body, through its *filière;* the second day of its work it begins to give its cocoons its proper form, multiplies the threads and shuts itself in; the third day it is entirely concealed; the following days it continues to work within, always with the same piece of silk, and without breaking it; and when it has given its domicil the utmost perfection it is susceptible of, it changes into a chrysalis. The piece of silk alone which forms a cocoon, is estimated at more than a league in length.

The cocoons should not be taken from the lodges or branches before four or five days after the worm commenced its work, for it requires that space of time to complete it. In gathering the cocoons, the *bourre*,* or first bave, should be separated from it, and the excrements which may be stuck to the threads of silk, should be also separated.

It would be of no advantage to reel the cocoons as soon as they have been taken from the branches; as the silk would be

* *Bourre or bave,* is the gummy process of the worms on first commencing their work.

fairer and of better lustre; but this is not practicable on account of the difficulty in procuring a sufficient number of reelers. It is therefore necessary to preserve the cocoons, and to destroy the worms contained in them, because after twenty days they pierce them in order to get out, and the silk would be lost.

The most common method of destroying the chrysalis, is to stifle the cocoons, either by putting them into an oven, in baskets covered with linen cloths, or by throwing them into boiling water; this latter method is equally effectual in destroying the chrysalis, without injuring the silk so much as the heat of the oven, which dries up the silk too much, and above all, the gummy part which gives it its lustre. It is therefore better to put the cocoons into boiling water for a few minutes, and on withdrawing them, to dry them on very clean hurdles.

Before reeling the cocoons, or destroying the chrysalis of those which are to be saved, a sufficient number should be reserved for seed for the following year. In making choice of them, always select out those from themselves where the worms have been the most forward to spin their cocoons: this promtitude to cocone, is a proof that they have been in good health during the whole course of their bringing up, which is a presumption in favour of the future generation which wil spring from their seed.

After having made choice of a sufficient number, they may be strung up in the form of a chaplet, taking care not to pierce through the cocoons, and they may be suspended against the side of the room until the millers come out. After eighteen or twenty days, they should be examined every morning; this is the time when the millers leave their cocoons: as fast as they come out, they should be placed on a table that they may couple; this table should be covered with a light thin cloth or stuff, in order that they may cling to it (crampouner)

As soon as the millers begin to come out, the chaplets should be looked over every morning, and the millers taken from them, and placed on the table; if any are found which are already coupled, they should be taken up lightly by the wings, and placed gently on the table. The males come out sooner than the females, and a greater number is found on the same morning: the male may be distinguished from the female by its slender shape, its vivacity, the continual fluttering of its wings; the female moves more slowly, and its belly is full of eggs, is shorter and thicker.

In order to couple the millers, the female should be placed on the piece of stuff which covers the table, and the male put by the side of it: always following the same line, by placing the female by the side of the male; and when the line is finished, begin another, until all the millers of that day are coupled. As to the supernumerary males, they should be placed on another table until the next day.

The time of coupling should last only nine or ten hours; then they should be carefully separated, the females should be placed on a piece of stuff hung against the wall; it will lay its eggs there during the night; the bottom of this stuff should be turned up in such a manner as to catch any seed which might be lost were not this precaution taken.

If the coupling should last too long, the female would die without having laid her eggs; if they are separated before eight or ten hours, the laying will be more difficult, and less abundant: a female who has been coupled for nine or ten hours, lays at least five hundred eggs with facility. It is proper to put the millers for coupling in a place which is rather cool than too hot; too great heat is very injurious to the laying.

When all the females have done laying, they should be thrown to the chickens, who are very fond of them. The pieces of stuff upon which they had laid, should be left attached to the wall during fifteen days, if the place is not too hot: otherwise, after remaining a greater or less length of time, the seed would be in danger of hatching. At the end of fifteen days, the pieces of stuff should be taken down, taking care that they be free from dust; then spread some old linen over them, and roll both together; put them into bags, and suspend them to the ceiling.

It is very important to preserve the seed from the cold during the winter, and keep it at an equal temperature, free from dampness. When the time for hatching comes on, the seed should be detached from the stuff, that it may be hatched according to the method of which we have already spoken. There can be reared two crops of silk worms a year; but the second is never so valuable as the first.

One ounce of seed contains forty-two thousand, forty thousand of which will ordinarily hatch, when the means employed for this purpose are well understood, and the seed is of a good quality: which may be esteemed a successful hatching, as forty thousand silk worms produce twenty thousand cocoons. Two hundred and fifty cocoons, yellow and white, one with another, weigh ordinarily a pound; thus one ounce of seed produces eighty pounds* of cocoons, if the crop is fortunate, and the best cares are crossed by no accident. If the cocoons are of a good quality, ten or twelve pounds at the utmost are sufficient to produce a pound of silk.

The Diseases of Silk Worms, &c.—Silk worms are subject to many diseases; that which is called the *rouge*, begins the moment the worms comes out of the shell: sometimes it remains in a languishing state, until the time for spinning its cocoon, which is generally inferior; but it never changes into a chrysalis. This disease proceeds from too great heat which the eggs are

* French weight, equal to 90 lbs. avoirdupois.

exposed to during their incubation, or from the sudden transition from heat to cold. When the greater part of the worms are attacked with this disease, the best way is to throw them away and commence anew.

Other diseases, often mortal, are occasioned by the impurity of the air of the spinning place, when the leaves on which the worms are fed are too much heaped, and the heat of the atmosphere is so great as to cause them to ferment. Diseases may be prevented by keeping a proper temperature, and by means of ventilators to purify the air. The floors may be watered often during the day; the water absorbs the superabundance of atmospheric electricity; these precautions are very beneficial during stormy weather.

The inclemency of the season has no influence on the silk worm, because in the cocoonry, by the aid of thermometers, a proper degree of heat may be given it. It therefore only remains to examine whether this artificial heat is injurious to the quality of the silk, and above all, if the severity of the climate may be hurtful to the mulberry.

To be convinced of these facts, it is only necessary to turn over in the mind the different countries of the earth which produce silk. The Nankin silks, or those received under that denomination, are the finest and best received from China; they are raised in the seven northern provinces of the vast empire, where the cold is so severe that the inhabitants are always under the necessity of warming their cocoonries with cow dung dried in the sun. The most inferior silks of China, are those of Canton, situated near the tropic: those collected near the equator, are of the least value. Those of Bengal are very inferior to those of China or Europe.

The mulberry tree has the particular advantage of being able to acclimate itself in all countries, where chance happens to place it; and the colder the climate the finer will the silk be which is produced from it.

The greatest obstacle to the culture of the silk-worm in cold countries, is, that mulberry leaves cannot be produced early enough. But experience shows that all sorts of trees, and particularly the mulberry, begin to shoot at least twelve or fifteen days sooner when they are lopped than when they grow naturally.

What hinders the cultivation of the mulberry as a dwarf, and even as a bush, far from being prejudicial to the worms, branches might be given them with the leaves; which even renders the silk stronger.

Mulberries may also be planted along walls with a southern or eastern aspect, in order that they may produce leaves early, and be in a state to feed those worms which have been first hatched; or still to come in for feeding them when the spring frosts have

injured the other trees. For this reason, mulberries in mountaineous countries should be placed in different exposures.

The leaves being the most useful part of the mulberry, it is proper to prune the branches every year, in order that the wood may be renewed, and the leaf of a better quality. The Piedmontese are in the habit of dividing their plantations into several copses, and to lop one of them every year: this practice renders the leaf larger and easier to gather.

Art. XL.—*An Evening at Judge Buel's.*

The Editor of the New-York Farmer recently visited Judge Buel, and has given to the public the information he obtained during an evening's conversation with that gentleman, who probably is not excelled in our country as a scientific and practical Farmer. We make the following selections from the New-York Farmer:

To Protect Plants.—The method which Mr. Buel adopts to protect his young plants that are liable to be injured by insects, is to nail four piecies of thin boards or shingles, in the form of a square or oblong, and of convenient breadth. These are covered with cheap millinet. Thus made, it is put over the plant, and by being pressed into the soil, serves not only to keep off winged insects from the leaves, but also those worms or grubs that crawl on the surface. If one side of the frame is lower or pressed down into the soil deeper than the other, and placed towards the south, more sun is admitted. The millinet is taken off of the frames, washed, and put away for another season.

Preserving Turnips.—It is not uncommon when turnips are buried to have them sprouted in the spring, before it is convenient to take them out. This is prevented by making a small hole through the covering of the pit, with a crow-bar or similar instrument, to let the confined and heated air escape.

The Dibble.—This is a very useful little cheap implement. It is generally made like the upper half of a shovel handle sharpened to a point. It it used for transplanting. After little practice, a person will use it with great facility, and set out a very great number of plants in a short time.

Transplanting.—Mr. Buel is in the habit of sowing in beds and transplanting a great many kinds of plants and vegetables. When taken out of the beds, the roots are immediately put into a mixture of soil and water—so thick as to adhere to the roots. They are then transplanted, with the aid of the dibble, at any time of the day, and in any weather. Should it be dry, they

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they will require watering the first night. The advantages of sowing in beds and transplanting are, that the plants are more easily protected from insects, can be brought forward earlier, require less labour to keep out weeds, and are put into fresh ground at the time favourable for a healthy growth.

Iron Plough.—This is entirely of wrought iron. It is sold by Mr. Smith, seedsman, Broadway, New-York. Mr. Buel considers it a good article; it turns a more uniform and handsomer furrow than others. It costs between twenty and thirty dollars, and is of course very durable.

Potato Hook.—This is an implement having three or four tines, wider than those of a dung fork, and nearly at right angles to the handle. Those who have many potatoes to dig, will find a convenience and profit in using it in preference to the hoe.

Drill Barrow.—When any considerable quantity of seed are to be sown in drills, the drill barrow is saving in the seeds, and expedites the work, independent of the advantages of a greater regularity, and consequently a more uniform and healthy growth of the plants.

Peach Pits are saved in the fall, and put away over winter, in boxes mixed with earth, to keep them from getting dry and hard. Pits that have been drying all winter, will seldom sprout the first spring, unless the shell is cracked. It is customary with nurserymen to plant them without the shells. These are often sown in beds and transplanted.

Salt.—The salt manufactured at Syracuse and Onondaga put up in baskets, or in sugar-loaf form, is a most beautiful and snow-white article. Its purity makes it a valuable article for butter.

To protect plants from frosts.—It often happens that frosts appear in April or May when vegetation is considerably advanced. By having a few square frames, and a number of sashes with four panes of glass to fit the frames, many thousand plants, in beds particularly, may be easily protected. These frames answer to protect and force early sowings, and keep off insects.

Preserving Strawberries.—Mrs. Buel gives the following directions. For every pound of berries take one of sugar. Dissolve the sugar in water over the fire. Skim off the impurities that rise. When boiling hot, scald a few berries at a time—take them out, and put them into a tumbler or small jar. Thus continue, until all are scalded—putting only a few into one vessel or jar in order to keep them whole. Boil down the syrup and pour it on the berries.

Rhubarb Pies.—Adjoining the barn, Mr. Buel has three barrels without heads, placed over three rhubarb plants. The tops of the barrels are covered with boards, and over the whole, and on all sides, stable manure is placed. About the 25th of March, these three plants will fill the barrel with well blanched leaves,

which will continue to grow and furnish sufficient for fifty to one hundred pies. These pies, when eaten cold, are very much like in flavour, to those made of gooseberries. Every farmer could, without trouble or expense, provide himself with them. Tavern keepers should not neglect to obtain the rhubarb.

Willows absorb moisture.—An instance was related, where fruit trees were in bad condition from the sub-soil retaining too much wet. The planting of willow trees near them was followed by a restoration to health. It is supposed the roots might have absorbed the superabundance of moisture.

To Preserve Eggs.—I was shown the contents of an egg which was laid last May. The yolk and the white were in apparently fresh and bright condition as they were nine months ago. While in a fresh state they are put in lime water. Lime that has been used for white-washing is very suitable. It is not so caustic as recently slacked lime, and consequently does not corrode the shell. The whole contents of the white-wash pail, with the addition of a sufficient quantity of water, should be put into a wooden tub or firkin containing the eggs. The business of preserving eggs would well compensate the trouble and expense. In the month of April and May they can be bought for $12\frac{1}{2}$ cents a dozen, and in the winter sold from $18\frac{3}{4}$ to $37\frac{1}{2}$ per dozen.

Paintings of Fruit.—Mr. Buel's study or sitting room is decorated with near one hundred beautiful paintings of the best varieties of apples, pears, plums, strawberries, and cherries—all in neat frames. The paintings are the productions of the young members of his family—painted in rainy days, long evenings, or as a recreation from other pursuits. They were either drawn from the splendid paintings of the Pomological Magazine, and other British works, or from the fruit itself. The paintings are made by formulas, with only a few days instruction. When from the fruit, the size of the apple or pear is first marked on the paper. This method of painting is very easily learned, is very expeditious, and, with familiarity with the natural object itself, is favourable to correct and tasty execution.

Art. XLI.—*Treatment of the Horse.*

[FROM THE AMERICAN FARMER.]

The harshness and abuse with which we see the noble animal, and useful servant of man, daily treated in our streets, give to the following remarks, on the education and treatment of the horse, much worth and interest: They are by Thomas R. Yare, of London, and are copied, by "*The Friend*," (a paper published in Philadelphia,) from the "*Sporting Magazine*."

"Buffon says, 'horses in their natural state are by no means ferocious; they are only wild and fiery;' and it may be added with equal truth, that they are not naturally vicious: for their ill tempers, as well as manners, originate entirely from defective education, and rough handling.

"Harsh usage and punishment are of no avail as corrections: for, under cruel discipline, the horse becomes more obstinate, morose, and irritable, and is very soon rendered dangerous of approach. If on the contrary, you use him kindly, and he finds that instead of a tyrant, he has a friend about him, he will be under your hands as tractable as a lamb; in fact so subservient that you may do anything with him—for it is well known to those acquainted with the nature of the horse, that no animal is more susceptible of soothing, nor more docile and grateful for gentle usage, as he invariably evinces cheerfulness on the approach of the person from whom he receives kind treatment.

"An occupation for which I have always felt a peculiar partiality, has been, the study of the temper and disposition of the horse; and, from the observations I have in consequence made, am convinced, that a multiplicity of errors are committed from ignorance of his true character in the rearing and tuition of that noble animal, which afterwards fall heavily and very unjustly on him.

"Many horses have been intrusted to my care for correction, under the supposition that they were bad tempered, or viciously disposed, which, in other hands, would, without doubt, have been acted upon accordingly—*i. e.* rendered more faulty by harsh proceedings. On acquaintance with them, I generally found the poor animals to be only nervous and irritable from ill treatment, rather than vicious by nature; in short, 'more sinned against than sinning;' for no sooner had I gained their confidence, than the tremulous awe and timidity they evinced on being approached, totally disappeared; and after a short trial, I have returned them to their owners, divested of the alledged complains, with this simple injuction, or something tantamount to it, 'Use him kindly, for vicious conduct makes vicious horses;' at the same time urging them to bear in mind, 'that the horse is naturally of a gentle disposition, and much disposed to associate with man.'

"This may be exemplified by any gentleman recollecting the pleasure a horse seems to feel when noticed and caressed by himself; yet, on scrutiny, the same demonstrations of joy will not take place on the approach of the attendant. Education generally imparts humanity and feeling to its possessor; and a gentleman enjoying these qualities more eminently than his domestics, the animal's discrimination causes him to recognize a difference in the behaviour of each towards him.

"Grooms are too prone to be harsh and hasty towards the horse; whereas, if they would only study to make a pleasure of

their duty, they would considerably abbreviate the routine of their labour. In consequence of erroneous conduct, horses will occasionally acquire a character for viciousness among stable men, which cannot be substantiated on reasonable grounds, the presence of the owner being frequently a complete refutation to the assertion.

"Horses usually evince attachment towards those who use them kindly. His late majesty, George III., had a favourite charger named Adonis. Whenever the king, on visiting his stables, chanced to pass near enough for Adonis to hear his voice, the animal would commence whining with joy, and his recognition of his master was always accompanied with so much noise, that, to quiet him, his majesty would invariably command him to be saddled and led forth. Having rode him for a few minutes round the premises, the gratified animal would then return peaceably to his quarters; but had the king not humoured his wish, the animal would have become uproarious.

"'Till within a very short period, I was not aware any person had publicly treated on the subject of humanity to horses with the same views entertained by myself; but I perceived with pleasure, in a review of a work printed on the continent, that the author justifies my opinion, and corroborates the truth of my remarks. One extract I have preserved, which I cannot do better than quote.

"'It is justly asserted, in the best works of the rural economy and the veterinary art, that *no horses are naturully vicious.* When they become vicious the reason is, because we pay too little attention to the horse, and do not study his nature sufficiently; and hence rather resort to the whip and spur, to signify our wishes to this noble animal, than to kind and gentle treatment. In a word, we know not how to make ourselves intelligible to the horse. It seems truly astonishing, that horses in general are not more obstinate; and that, in the consciousness of their strength, they do not strive more to rid themselves of their slavery, when we consider how severely, cruelly, and barbarously, these generous beasts are treated. How often are they beaten and ill used, frequently without any cause! and how seldom, on the other hand, are they addressed in terms of commendation and encouragement, and still less rewarded! and yet attentive observers have ascertained, that the horse, like the elephant and dog, possesses a sensibility of the nerves which might be termed a sense of honour, and which is equally susceptible of praise and blame.'

"Vicious habits may likewise be ascribed to imperfect training. For instance: a horse is entrusted for that purpose, to the care of a person totally unacquainted with the manner of treating him, consequenly incapable of judging whether the horse be qualified by nature to fulfil the intentions of the owner. The age and strength of the animal have been taken into consideration;

and his incapacity to undergo the fatigue allotted to him, although proceeding from weakness, has very incorrectly been ascribed to stubbornness and obstinacy. Resistence, as may be expected, has been the natural consequence; harsher usage has followed; the temper of the animal has become soured; and he has really imbibed a vicious character, which, at the onset, was only imaginary. The result has been open warfare between him and his rider, in which the latter seldom gained an ascendency; and the former has never been duly trained for the purpose for which he was destined; indeed he has frequently been rendered quite unserviceable, and become afterwards a drug in the market, though nature had intended him to be useful in many capacities; which under judicious management, would doubtless have been realized.

"For a long series of years I have been in the habit of making observations on the errors committed in the usual treatment and training of horses, and I am convinced, from experience deduced by long study of the nature of horses, and continual intercourse with them, that mild discipline is the *sine qua non* of stable-management, and it is the interest of every proprietor to see it enforced. Patience and good temper are cardinal requisites in a groom. Horses have very retentive memories, and seldom forget the unruly tricks or habits acquired from improper and hasty handlings."

Art. XLII.—*Sheep.*

[FROM THE NEW-ENGLAND FARMER.]

A writer in the Gardner (Maine) Standard, in answer to an inquiry as to the best mode and the expense of keeping sheep, says:

"Sheep do best in summer on high, dry, and rocky land. In a pasture which has a more or less northerly aspect and plenty of shade, they may run in large flocks, for they seldom crowd together in hot weather, where the shade is in different parts of the pasture. They should have salt by them to lick when they please. If two or three pastures can be furnished, to change their location once a week, so much the better. Hard stocking keeps the grass short and sweet, and of this they are more fond than after the seed stalk springs. It is hardly possible to keep sheep through the winter on hay alone, in as good condition as they come to the barn; they should have some succulent food daily, and the more the better, or they lose flesh. To judge from my own experience, I should say, give a sheep daily four pounds of Ruta Baga, and as much hay as she will eat, which will be about one pound, and she carries her summer fat through the the winter, and is much more sure to raise her lamb than if fed on hay alone.

"Indian corn, in quantity of a gill daily, or even half a gill is of great service. Every farmer is more than paid for his corn in the weight of the fleece alone, to say nothing of the benefit to the animal.

"Last winter, as you know, I fed largely with the turnip, there was not a sheep in the flock at all disordered during feeding time. I am well satisfied that a good proportion of succulent food, suits the stomach better than all dry food of any kind.

"An acre of pasture will feed six sheep with their lambs through the season—most farmers say seven or eight. I have weighed out two pounds of hay per head to my flock, several days in succession, in clear cold weather, and found that alone as much as a sheep will eat. This corresponds with the experiment of Dr. Daubenton in France, although he does not inform us what breed his experiment was tried with. We feed about one hundred and forty days on an average. A ton of hay will therefore winter eight sheep. If we estimate the cost per ton at $2,50, the expense of wintering on hay alone is thirty-one cents. But it is better to winter at more expense, in order to insure a good fleece and the life of the lamb."

ART. XLIII.—*Culture of Mushrooms—Agaricus campestris*, L.

[FROM THE GENESEE FARMER.]

There are but few people who have tasted of a dish of mushrooms, when well prepared, but what consider them as approaching very near in point of flavour to oysters. One reason why they have not been more generally used is, because that there are a number of varieties found growing with the edible ones, which are very poisonous; and, where children allowed to gather them, there might be some danger of their collecting those which, if eaten, would produce the most serious consequences.

To avoid these dangers, in Europe the mushroom is cultivated in gardens, green houses, and such other places as are favourable to their growth, and sent to their tables as a great delicacy. In this country, their cultivation has been so little attended to that very few of our gardeners are acquainted with the manner of raising them; but as Messrs. Rossiter and Knox of this village have been at the expense of importing some seed, or, as it is more generally called, *spawn*, we give some short directions for cultivating them, hoping that some of our gardeners will be induced to make the experiment.

The spawn used as seed from which mushrooms are raised, comes to us moulded in form like bricks. These bricks are composed of manure and earth, and is the same in which the spawn

has been propagated. The spawn itself is a white, threadlike substance, running in various directions through these bricks. When planted, these bricks are broken into small spieces, and distributed through the bed prepared for them, after which, these small threads or fibres swell unevenly, and from the larger parts send up the part which is eatable.

Mushrooms may be cultivated upon old hot beds. After the plants have been removed to the garden, or upon ridges prepared in open ground, covered with mats or boards for a time, to prevent an excess of moisture, or on beds prepared in sheds, or green houses, or cellars.

To cultivate mushrooms upon old hot-beds that have been used for forcing early plants, little labour is necessary more than to renew the mold upon it, mixing some of the manure from the bed with it; and after mixing the spawn with the soil thus prepared, let the glass be replaced, or the bed may be covered with boards, as mushrooms do not require much light. On old beds a crop of mushrooms may be expected in about four weeks.

To cultivate mushrooms upon ridges or beds in a garden, they should be formed of rotted horse manure and earth, and raised considerably above the surrounding surface; for the first four weeks boards may be used, after which mats should be substituted that the umbels may the more readily extend themselves over the surface. The time required for producing mushrooms upon beds or ridges in the open air, depends much on the temperature of the atmosphere. If planted by the middle of May, they will be fit for use about the first of July.

When mushrooms are to be raised in cellars, a floor should be laid with boards or planks, or if more convenient, a quantity of coarse litter, sufficient to arrest the ascending damp, may be substituted, over which a bed of well rotted horse manure and earth may be made, and the spawn sown in it at two or three inches depth. The temperature of a cellar for raising mushrooms should not be less than 60°, as the extremes should not when it can be avoided exceed 20°, or from 50° to 70°.

After the beds are made and the spawn introduced, they should have one or two plentiful waterings, after which they should be kept rather dry than otherwise.

The time of gathering mushrooms for cooking is as soon as they are fairly opened, when the genuine ones may be known by the colour of the gills, which should be a pale pink, having an agreeable smell; whereas, the poisonous ones have a pale, dingy, ash colour, with a very disagreeable, nauseating odour. Those mush rooms which are intended for making catsup may be allowed to remain longer upon the bed, even until the gills begin to turn brown, as they are then found to have a stronger flavour.

PART III.

MISCELLANEOUS INTELLIGENCE.

Manure.—Mr. Editor—Few farmers are aware of how much of the strength of manure is lost and carried off by rains from their barn yards: especially when situated on the road and descending towards it, as is often seen, and a stream the colour of strong ley or brown stout constantly running from it. My yard is about 60 or 70 feet, and dishing towards the centre—the cattle stalls under the hovel on one side, with a clay bottom, also descend without any obstruction to the same point. There is a wooden tank sunk at one end, which will contain eight puncheons, but no drainings can run into the tank, until it is over eight inches deep in the centre; and yet although the litter is generally a foot thick, such is the quantity of moisture which accumulates from the 1st of March to the 1st of July, that one rainy day will fill a puncheon which receives a quarter of the rain which falls on the roof of a house 40 by 40 feet, fills the tank after saturating the litter. How much then would be lost from a level yard or from one descending towards the street? and how much the dung must be deteriorated, after having such a quantity of its strength carried off by every rain. This liquid is drawn up into a puncheon, mounted on a horse cart, thence conducted into a sprinkler, such as is used for watering the streets of cities, and driven over my grass lands nearest home until the grass is half knee high, after which it is drawn out of the cask in buckets, and thrown on the compost heap, which is generally in the highest part of the field which is intended to be next ploughed or broke up. My hired man can, when he chooses, carry out and sprinkle the contents of the tank in half a day.

Perhaps some of your readers would like to know the dimensions, materials, and expense of the tank. Material, the heavy southern 1¼ inch pitch pine, joined by a straight edge as if to be glued. Dimensions, 6 feet long, 4 wide, and 4 deep. I think this material will last as long under ground as brick; it is covered with thick plank, and we drive loaded carts over it. Whole expense, about thirteen dollars. It ought, however, to be larger, as it often runs over before we have an opportunity to carry it out. I think it has been perfectly tight from the first, as I have seen it stand full, within an inch, for many days

An Irishman who lived with me, said he lived in the neighbourhood of a farmer who had a large one, and used to throw in every dead animal he could procure, and would run it over land drilled for potatoes, with as many tap holes in the cask, as there were drill rows under it. B.

Bridgeport, Feb. 6, 1832.—*N. E. Farmer.*

Successful method of increasing the Sweet-scented China Rose, its varieties, and other Roses of similar habits.—Mr. McIntosh proposes, (what has long been practised by the gardeners in this part of the country) to take the cuttings off after the flowering-season, and plant them in rich light soil, under a hand-glass, in a cool shady situation. When plants of a larger size are required, the process of budding them on stocks of the wild roses is to be preferred.—*Horticultural Register.*

Love Apple, (Solannm Lycopersium) *a Substitute for Hops.*—We are assured, says Mr. McIntosh, that the leaves and stalks of this plant have been successfully used at Sidney, in New-Holland, to communicate the bitter principle to beer, made from Indian corn, properly malted. If this should be found correct, he adds, we see no reason why it should not have a similar effect on beer, manufactured from barley.—*Hol. Reg.*

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To preserve vegetables from degenerating.—Many persons experience great disadvantage from the changing of their garden seeds and other seeds into a worse kind, or into those of a quite different sort. In this way pumkins and squashes, cabbages and turnips, gourds, and even cucumbers and musk-melons, have injured one another, and produced a mingled sort unfit for use.

To preserve the purity of seeds, the following rules are recommended:—Never plant gourds near squashes, lest you make the squashes bitter. Never plant squashes near pumkins, lest you cause both sorts to degenerate. Never place different sorts of seed cabbages near each other, lest you create a mixture, nameless and not worth naming. Never plant seed turnips near seed cabbages, lest both should be spoiled. Never plant different sorts of seed beets, seed radishes, &c. near each other; and as a general rule, never plant near one another vegetables which resemble each other in some respects, but having qualities which should be kept distinct.

Loudon says, the great art of the seed gardener is to grow seeds true to their kind, for which purpose, one grower must not attempt too many varieties of the same species; but he may grow a number of different species and of varieties of the same species, provided they do not come into flower at the same time.—*N. E. Farmer.*

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Vegetable Curiosity.—We have lately examined a peach tree which was raised from the seed by Mr. A. Brown, of the town of Greece in this county, which is a great curiosity, as exhibiting variations from the common laws of vegetation. At the season when other trees put forth their blossoms, there may be seen upon this a great number of button shaped buds or projections, corresponding in situation to the blossoms on other trees, which, instead of expanding and showing petals or flower leaves, send out from thirty to forty small peaches. As these increase in size they make a singular appearance, and would leave us to conclude that not only the stamens and petals by some unaccountable process, had been changed into rudiments for fruit. It is not uncommon, among garden flowers, to see these monstrocities which we call double flowers, (as the double Peony) in which all the stamens have been converted into petals, from which circumstance such flowers do not produce seed; but we do not recollect to have seen an instance where stamens and petals both appeared to have been converted into capsules or fruit. Should any of our nurserymen have noticed the like sports of nature, we would be glad to hear from them.—*Gen. Far.*

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Cabbage Tree of Lapland.—M. Garnier, of Auxonne, has received from the direction of the nursery of Lyons, twenty seeds of this cabbage, which is said to be entirely different from the *chou cavalier*, the *ruta baga*, or the common cabbage of Lapland. M. Garnier says, that it thrives better and puts forth more shoots, the more bitter the cold is; that its leaves are rather more than a foot long. In the second year it attains the height of four or five feet that its top becomes ramified, (branching out,) its flowers yellow, and streaked. The fruit is about four inches long; and it produces three times as much seed as other oleaginous plants, and also in winter it affords a considerable forage.—*Journal de Bruxelles.*

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Large and Productive Apricot Tree—A writer in the Horticultural Register, (Mr. Deas) gives the following account of a magnificent Brussels Apricot Tree, grown at Arundel Castle, Sussex, England:—

"It was planted in February, 1772, where it stands, and for two years did not grow above six inches: it is trained against a south aspect flint wall, and completely covers forty-eight feet long by twenty feet high; the stem, a foot from the surface, measures three feet three inches, it there divides into three leading branches. It is in the greatest health and vigour, and is completely covered with bearing wood, from top to bottom, and from one extremity to the other; although growing in about equal mixtures of black earth, clay and small chalk, it has not failed of bearing an excellent crop for a great many years.

'I last year gathered 1800 very fine ripe fruit from it, besides gathering for tarts and thinning out 5376, making the total number of fruit set on it in one year 7176, or 598 dozen. That number I counted myself, for I was anxious to ascertain the exact number."

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Indian Corn.—Mr. William Shaler has transmitted to the Massachusetts Horticultural Society, some corn given him by Baron de Karvinski, obtained in Mexico. It is thus noticed: "But the Indian corn may be an acquisition to the country; the ear from which these grains were taken, was at least eighteen inches long, and the Baron tells me the stalk or plant is like a small tree, it therefore merits your attention."

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Silk.—To the letter of Mr. Geiger (and our Note) on the raising of Silk in the Southern States, published in the current volume, page 243, the Editor of the American Farmer appends the following note:—

"As to the simplicity of raising silk, the above letter and the commentary of the Editor of the Southern Agriculturist, are perfectly correct. We have had much experience in the business and can say that the whole process is simple, easily acquired and easily performed. The business would be profitable if mulberry trees were convenient, and the business well conducted—probably more so in the South than any of the present objects of culture.—*Ed. Am. Far.*

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Experiment on the Curculio.—I made numerous experiments the last season, for protecting the fruit of my plum trees from the depredations of the "curculio," that feeble but irresistible enemy to all horticulturists: one was to suspend small bunches of rags dipped in Sencca oil and sulphur, under the branches of the tree; to these they paid no attention, but deposited their eggs in the fruit not an inch from the rags. Another three was sprinkled frequently with soap suds mingled with sulphur, but with little better success. On a third tree which grew near a shed a mixture of equal parts of fine flour of sulphur and wood soot, was scattered from a seive over the leaves and fruit, when they were moist with dew or wet with a shower—this proved a complete protection. The fruit was not attacked by the little destroyer, but attained nearly its full size and began to change its colour for ripening. I had calculated on the fine eating we should have shortly, when, lo, a new calamity appeared in the form of numerous cracks and fissures, first appearing on the upper surface of the fruit and in a few days spreading to the stem, and exuding the gum of the tree in small drops; they rotted and fell to the earth without affording me a single ripe one. The trees were the Orleans plum and blue gage. The application had no influence in causing the cracks, as the same thing happened to some branches which were covered with millinet, and to which none of the powder was applied. It must arise from an exuberance of sap, produced by a soil too rich for the healthy growth of the plum. It does best in a poor hard soil, while mine is rich and mellow. It is the same with the pear tree. The only healthy trees within my knowledge are growing on a poor clayey, or dry gravelly soil.—*N. E. Farmer.*

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To ripen Fruit.—To lovers of gardening it may not be unacceptable to know, that painting the walls *black* greatly forwards the ripening of fruit.—*Ibid.*

Peach Trees.—A friend informs us, that he has saved his peach trees from destruction by the *borer*, by placing the cinders from the forge around the roots. This method keeps the trees in a perfectly healthy state; and was discovered by the flourishing appearance of a tree near a blacksmith's shop.—*Salem Observer.*

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Salt for Peach Trees.—An intelligent farmer of Bushwick, assures us that the application of *common salt* to the roots of his peach trees has had a good effect, in keeping the miller from depositing its eggs on the bark, and promoting the growth and the fruit of the tree.—*L. I. Star.*

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Destroying Insects.—Nature has provided many of the insect tribes with the faculties of withstanding our most severe winters, and yet reviving with the first warmth of summer. Some dive deep in the earth, thereby escaping the effects of frost, while others, more averse to dapness, secrete themselves in the clefts of the bark of trees, or encase themselves in gummy coverings, from which they emerge and commence their works of destruction with the first dawn of vegetation. By examining the bark and buds of fruit trees at this season, thousands of these little destructive insects may do found enveloped in cases which seem to defy the inclemency of the season, but which may be destroyed by artificial means more readily than after they are thown into life. Washing trees with soap-suds, or rubbing them over with soft soap, is one of the most effectual ways of destroying such insects as remain upon the trees during the winter; at the same time it has a good effect upon the trees, as by being washed to the ground by the rains it answers an excellent purpose as manure. Some prefer mixing lime with soft soap, and applying it with a brush in the form of a white-wash, which remains long upon the tree, and is an excellent application; and where the colour is objected to, a small quantity of lamp-black may be added, which will give it a grey appearance. We strongly urge our horticulturists to make trial of either the above applications—they will find it much to their advantage. During the above operation, the small limbs of apple trees should be looned over, and the eggs of *bag worms* taken off. They are readily distinguished as a projecting ring round small limbs, about one inch long, full of small cells like a honey comb, each cell containing a worm in its embryo state; these also hatch out as soon as the leaves are large enough for them to feed upon, but can be destroyed at this season with certainty and very little trouble. Where trees are washed with soap or lime in the spring, insects that pass the winter in the earth, will not climb them as readily as those which have not been washed, which alone should be a sufficient inducement for every good farmer, who has any taste for fruit, to make the application before his enemies can escape by flight.

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Nature of Earths with reference to the Growth of Plants.—The report of M. M. Thenard and Sylvester, on a memoir upon this interesting subject by M. J. St. Hilaire, is to the following purport. The author remarks that most persons who have analyzed arable earths, have taken exclusively such as have been cultivated, the original constitution of which has been more or less altered. He believes the various kinds of earths in their first state, have peculiar properties of nourishing particular plants; and that the exact knowledge of these peculiarities would enable cultivators to put those seeds in the ground, which are most suited to it. From various analyses, he draws the following inferences;—1st, that all earths are composed of silica, alumina, lime, magnesia, &c. in different proportions, together with a vegito animal matter, which is more abundant as the earth is more fitted for the nourishment of plants. 2ndly, that plants placed in earths, of which the constituent parts have an analogy with the particular nature of the plants do not exhaust the soil. 3rdly, that a series of observations on the different species, genera, and families, which grow naturally and in great numbers, perpetuating themselves on certain soils, with the analysis of these soils, would be of great utility in agriculture.—*Rev. Ency.*